Inventor Name Search Result

Your Search was:

Last Name = KOLODNER
First Name = RICHARD

Application#	Patent#	Status	Date Filed	Title	Inventor Name
08154792	Not Issued	161	11/17/1993	MISMATCH REPAIR GENES, GENE PRODUCTS, AND USES THEREFOR	KOLODNER , RICHARD D.
08163449	Not Issued	161	12/07/1993	MISMATCH REPAIR GENES, GENE PRODUCTS, AND USES THEREFOR	KOLODNER , RICHARD D.
08209521	5922855	150	03/08/1994	MAMMALIAN DNA MISMATCH REPAIR GENES MLH1 AND PMS1	KOLODNER , RICHARD D.
08259310	Not Issued	161	06/13/1994	METHODS AND REAGENTS RELATED TO CANCER DETECTION AND DIAGNOSIS	KOLODNER , RICHARD D.
08352902	6191268	150	12/09/1994	COMPOSITIONS AND METHODS RELATING TO DNA MISMATCH REPAIR GENES	KOLODNER , RICHARD D.
08448444	Not Issued	140	12/06/1995	METHOD FOR DETECTION OF ALTERATIONS IN THE DNA MISMATCH REPAIR PATHWAY	KOLODNER , RICHARD D.
08460899	5824471	150	06/05/1995	DETECTION OF MISMATCHES BY CLEAVAGE OF NUCLEIC ACID HETERODUPLEXES	KOLODNER , RICHARD
08465251	Not Issued	174	06/05/1995	METHOD FOR DETECTION OF ALTERATIONS IN THE DNA MISMATCH REPAIR PATHWAY	KOLODNER , RICHARD D.
08961810	6165713	150	10/31/1997	COMPOSITION AND METHODS RELATING TO DNA MISMATCH REPAIR GENES	KOLODNER , RICHARD D.
09265503	Not Issued	089	03/10/1999	COMPOSITIONS AND METHODS RELATING TO DNA MISMATCH REPAIR GENES	KOLODNER , RICHARD D.
09469636	Not Issued	095	12/22/1999	MSH5 ABLATED MICE AND USES THEREFOR	KOLODNER, RICHARD D.
09470276	Not Issued	071	12/22/1999	METHOD OF DETECTION OF ALTERATIONS IN MSH5	KOLODNER, RICHARD
09658734	Not Issued	041	09/11/2000	METHODS FOR IDENTIFYING COMPOUNDS WHICH MODULATE THE ACTIVITY OF MSH5	KOLODNER, RICHARD D.
09658969	Not	071	09/11/2000	METHODS FOR MODULATING	KOLODNER,

	Issued			THE ACTIVITY OF MSH5	RICHARD D.
60051686	Not Issued	159	07/03/1997	METHOD FOR DETECTION OF ALTERATIONS IN MSH5	KOLODNER , RICHARD
60113487	Not Issued	159	12/22/1998	MSH5 ABLATED MICE AND USES THEREFOR	KOLODNER , RICHARD D.
60327728	Not Issued	020	10/05/2001	ISOLATED CRYOPYRINS, NUCLEIC ACID MOLECULES ENCODING THESE, AND USE THEREOF	KOLODNER, RICHARD

Inventor Search Completed: No Records to Display.

Search Another: Inventor **Last Name** kolodner **First Name** richard Search

(To go back use Back button on your browser toolbar.)

Back to PALM | ASSIGNMENT | OASIS | Home page

Inventor Name Search Result

Your Search was:

Last Name = EDELMANN
First Name = WINFRIED

Application#	Patent#	Status	Date Filed	Title	Inventor Name
09469636	Not Issued	095	12/22/1999	MSH5 ABLATED MICE AND USES THEREFOR	EDELMANN, WINFRIED
09658734	Not Issued	041	09/11/2000	METHODS FOR IDENTIFYING COMPOUNDS WHICH MODULATE THE ACTIVITY OF MSH5	EDELMANN, WINFRIED
09658969	Not Issued	071	09/11/2000	METHODS FOR MODULATING THE ACTIVITY OF MSH5	EDELMANN, WINFRIED
09991099	Not Issued	019	11/21/2001	MSH4 ABLATED MICE AND USES THEREFOR	EDELMANN, WINFRIED
60113487	Not Issued	159	12/22/1998	MSH5 ABLATED MICE AND USES THEREFOR	EDELMANN , WINFRIED
60252661	Not Issued	020	11/22/2000	MSH4 ABLATED MICE AND USES THEREFOR	EDELMANN, WINFRIED

Inventor Search Completed: No Records to Display.

Search Another: Inventor **Last Name** edelmann **First Name** winfried Search

(To go back use Back button on your browser toolbar.)

Back to PALM | ASSIGNMENT | OASIS | Home page

WEST

Generate Collection | Print

Search Results - Record(s) 1 through 3 of 3 returned.

☐ 1. Document ID: US 20020058275 A1

L3: Entry 1 of 3 File: PGPB May 16, 2002

PGPUB-DOCUMENT-NUMBER: 20020058275
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020058275 A1

TITLE: Compositions, kits, and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins

PUBLICATION-DATE: May 16, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Fishel, Richard A.	Penn Valley	PA	US	
Gradia, Scott	Philadelphia	PA	US	
Acharya, Samir	Philadelphia	PA	US	

US-CL-CURRENT: 435/6; 435/91.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 2. Document ID: US 20020039776 A1

L3: Entry 2 of 3 File: PGPB Apr 4, 2002

PGPUB-DOCUMENT-NUMBER: 20020039776
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020039776 A1

TITLE: Mammalian SUV39H2 proteins and isolated DNA molecules encoding them

PUBLICATION-DATE: April 4, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Jenuwein, Thomas	Wien		AT	
O'Carroll, Donal	Greystones		IE	
Rea, Stephen	Headford		IE	

US-CL-CURRENT: 435/193; 435/15, 514/1, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 3. Document ID: US 6333153 B1

L3: Entry 3 of 3 File: USPT Dec 25, 2001

US-PAT-NO: 6333153
DOCUMENT-IDENTIFIER: US 6333153 B1

TITLE: Compositions, kits, and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins

DATE-ISSUED: December 25, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fishel; Richard A.	Penn Valley	PA		
Gradia; Scott	Philadelphia	PA		
Acharya; Samir	Philadelphia	PA		

US-CL-CURRENT: 435/6; 435/7.1, 435/91.2, 530/350, 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

Generate Collection | Print

Terms	Documents
L2 and (regulation or modulation)	3

Display Format: - Change Format

Previous Page Next Page

WEST Search History

DATE: Monday, May 20, 2002

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,EPAB,DWPI; PLUR=YES; OP=OR			
L3	L2 and (regulation or modulation)	3	L3
L2	msh5	7	L2
L1	msh5 and modulating	4	L1

END OF SEARCH HISTORY

=> s (MSH5 and modulating) and inhibit and (MSH5 (w) expression) or (MSH5 (w) activity)
L2 6 FILE DGENE
L3 2 FILE USPATFULL

TOTAL FOR ALL FILES
L4 8 (MSH5 AND MODULATING) AND INHIBIT AND (MSH5 (W) EXPRESSION) OR (MSH5 (W) ACTIVITY)

=> d l4 1-8 ibib abs

L4 ANSWER 1 OF 8 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62961 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62961 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5 activity**, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to identify ES cell colonies which are successfully transfected with a Msh5 containing vector pMsh5ex18 in examples used to illustrate the methods of the invention.

L4 ANSWER 2 OF 8 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62960 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62960 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5 activity**, a method for modulating the activity of MSH5, and a

method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to identify ES cell colonies which are successfully transfected with a Msh5 containing vector pMsh5ex18 in examples used to illustrate the methods of the invention.

L4 ANSWER 3 OF 8 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62959 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62959 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5 activity**, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to clone the coding sequence of the mouse Msh5 gene. The primer is based on the human Msh5 cDNA sequence.

L4 ANSWER 4 OF 8 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62958 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62958 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5 activity**, a method for modulating the activity of MSH5, and a

method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to clone the coding sequence of the mouse Msh5 gene. The primer is based on the human Msh5 cDNA sequence.

L4 ANSWER 5 OF 8 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62957 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62957 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5 activity**, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to obtain a segment of the mouse Msh5 gene. The primer is based on the human Msh5 cDNA sequence.

L4 ANSWER 6 OF 8 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62956 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62956 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5 activity**, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility

disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to obtain a segment of the mouse Msh5 gene. The primer is based on the human Msh5 cDNA sequence.

L4 ANSWER 7 OF 8 USPATFULL

ACCESSION NUMBER: 2002:112540 USPATFULL
TITLE: Compositions, kits, and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins
INVENTOR(S): Fishel, Richard A., Penn Valley, PA, UNITED STATES
Gradia, Scott, Philadelphia, PA, UNITED STATES
Acharya, Samir, Philadelphia, PA, UNITED STATES
PATENT ASSIGNEE(S): Thomas Jefferson University, Philadelphia, PA, UNITED STATES, 19107-5587 (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002058275	A1	20020516
APPLICATION INFO.:	US 2001-934909	A1	20010822 (9)

RELATED APPLN. INFO.: Division of Ser. No. US 1998-143571, filed on 28 Aug 1998, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-93935P	19980723 (60)
	US 1997-66977P	19971128 (60)
	US 1997-57136P	19970828 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P., ONE COMMERCE SQUARE, 2005 MARKET STREET, SUITE 2200, PHILADELPHIA, PA, 19103
NUMBER OF CLAIMS: 55
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 25 Drawing Page(s)
LINE COUNT: 4648

AB Compositions, and products comprising a MutS homolog which binds to a mismatched region of a duplex DNA molecule in the presence of ADP are provided, as are methods of binding MutS homologs to mismatched DNA in the presence of ADP. The use of MutL homolog derivatives in combination with MutS homologs is also included. Nonhuman mammals which are nullizygous for both Msh2 and p53 are also provided, as are methods of making and using the same.

L4 ANSWER 8 OF 8 USPATFULL

ACCESSION NUMBER: 2001:235086 USPATFULL
TITLE: Compositions, kits, and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins
INVENTOR(S): Fishel, Richard A., Penn Valley, PA, United States
Gradia, Scott, Philadelphia, PA, United States
Acharya, Samir, Philadelphia, PA, United States
PATENT ASSIGNEE(S): Thomas Jefferson University, Philadelphia, PA, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6333153	B1	20011225
APPLICATION INFO.:	US 1998-143571		19980828 (9)

	NUMBER	DATE

PRIORITY INFORMATION:	US 1998-93935P	19980723 (60)
	US 1997-66977P	19971128 (60)
	US 1997-57136P	19970828 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	GRANTED	
PRIMARY EXAMINER:	Zitomer, Stephanie W.	
LEGAL REPRESENTATIVE:	Akin, Gump, Strauss, Hauer & Feld, L.L.P.	
NUMBER OF CLAIMS:	88	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	49 Drawing Figure(s); 25 Drawing Page(s)	
LINE COUNT:	4750	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Compositions, and products comprising a MutS homolog which binds to a mismatched region of a duplex DNA molecule in the presence of ADP are provided, as are methods of binding MutS homologs to mismatched DNA in the presence of ADP. The use of MutL homolog derivatives in combination with MutS homologs is also included. Nonhuman mammals which are nullizygous for both Msh2 and p53 are also provided, as are methods of making and using the same.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=>

> d l7 1-115 ibib abs

L7 ANSWER 1 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAW94057 Protein DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAW94057 Protein DGENE
AB This represents a human **MSH5** (hMSH5) protein. Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the protein. The **MSH5** gene is a DNA mismatch repair gene. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy.

L7 ANSWER 2 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAW94058 Protein DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAW94058 Protein DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. The present sequence represents a murine **MSH5** (mMSH5) protein.

L7 ANSWER 3 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAY06778 Protein DGENE

TITLE: Use of MutS homologs - for developing methods and products for use in the study, detection and treatment of e.g. tumorigenesis, apoptosis, ageing and foetal development
INVENTOR: Acharya S; Fishel R; Gradia S
PATENT ASSIGNEE: (UYJE-N)UNIV JEFFERSON THOMAS.
PATENT INFO: WO 9910369 A1 19990304 160p
APPLICATION INFO: WO 1998-US17914 19980828
PRIORITY INFO: US 1998-93935 19980723
US 1997-57136 19970828
US 1997-66977 19971128
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-204647 [17]
AN AAY06778 Protein DGENE
AB The invention relates to compositions, kits and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins. The products comprise a MutS homolog which binds to a mismatched region of duplex DNA molecule in the presence of ADP. The use of MutL homolog derivatives in combination with MutS homologs are also included. The methods and products can be used for the study, detection and treatment of events involved in tumourigenesis, apoptosis, ageing and foetal development.

L7 ANSWER 4 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62961 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5**-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62961 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for **modulating** the activity of **MSH5**, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5**-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as contraceptives. The present sequence represents a PCR primer used to identify ES cell colonies which are successfully transfected with a **Msh5** containing vector pMsh5ex18 in examples used to illustrate the methods of the invention.

L7 ANSWER 5 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62960 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5**-related disorders, e.g. fertility disorders -

INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62960 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for **modulating** the activity of **MSH5**, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5**-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as contraceptives. The present sequence represents a PCR primer used to identify ES cell colonies which are successfully transfected with a **Msh5** containing vector pMsh5ex18 in examples used to illustrate the methods of the invention.

L7 ANSWER 6 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62959 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5**-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62959 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for **modulating** the activity of **MSH5**, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5**-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as contraceptives. The present sequence represents a PCR primer used to clone the coding sequence of the mouse **Msh5** gene. The primer is based on the human **Msh5** cDNA sequence.

L7 ANSWER 7 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62958 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5**-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62958 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for **modulating** the activity of **MSH5**, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5**-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as contraceptives. The present sequence represents a PCR primer used to clone the coding sequence of the mouse **Msh5** gene. The primer is based on the human **Msh5** cDNA sequence.

L7 ANSWER 8 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62957 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5**-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62957 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for **modulating** the activity of **MSH5**, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5**-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of

MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as contraceptives. The present sequence represents a PCR primer used to obtain a segment of the mouse **Msh5** gene. The primer is based on the human **Msh5** cDNA sequence.

L7 ANSWER 9 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62956 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed MutS homolog 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5**-related disorders, e.g. fertility disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62956 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for **modulating** the activity of **MSH5**, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5**-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as contraceptives. The present sequence represents a PCR primer used to obtain a segment of the mouse **Msh5** gene. The primer is based on the human **Msh5** cDNA sequence.

L7 ANSWER 10 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05112 cDNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05112 cDNA DGENE
AB This cDNA encodes a human **MSH5** (hMSH5) protein. Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the protein. The **MSH5** gene is a DNA mismatch repair gene. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative

of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy.

L7 ANSWER 11 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05113 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05113 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 12 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05163 cDNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05163 cDNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene

confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. The present sequence represents a cDNA encoding a murine **MSH5** (mMSH5) protein.

L7 ANSWER 13 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05117 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05117 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 14 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05127 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05127 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene

therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 15 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05161 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05161 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05161-162 represent primers used for the PCR amplification of the hMSH5 gene.

L7 ANSWER 16 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05131 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05131 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 17 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05130 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05130 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 18 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05129 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05129 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 19 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05128 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** -

used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05128 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 20 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05126 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05126 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 21 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05125 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N

PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05125 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 22 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05124 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05124 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 23 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05123 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702

PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05123 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 24 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05122 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05122 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 25 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05121 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English

OTHER SOURCE: 1999-106052 [09]
AN AAX05121 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 26 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05120 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05120 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 27 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05119 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05119 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5**

. Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 28 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05118 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05118 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 29 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05116 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05116 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and

segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 30 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05115 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05115 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 31 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05114 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05114 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a

predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 32 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05147 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05147 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 33 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05146 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05146 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for

prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 34 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05145 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05145 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 35 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05144 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05144 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and

agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 36 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05143 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05143 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 37 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05142 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05142 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 38 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05141 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05141 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 39 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05140 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05140 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 40 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05139 DNA DGENE

TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05139 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 41 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05138 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05138 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 42 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05137 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome

INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05137 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 43 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05136 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05136 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 44 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05135 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p

APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05135 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 45 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05134 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05134 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 46 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05133 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent

LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05133 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 47 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05132 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05132 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 48 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05164 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05164 DNA DGENE

AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 49 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05155 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05155 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 50 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05160 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05160 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and

segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 51 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05159 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05159 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 52 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05158 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05158 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a

predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 53 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05157 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05157 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 54 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05156 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05156 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for

prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 55 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05154 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05154 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 56 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05153 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05153 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and

agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 57 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05162 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05162 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05161-162 represent primers used for the PCR amplification of the hMSH5 gene.

L7 ANSWER 58 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05152 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05152 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 59 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05151 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05151 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 60 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05150 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05150 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 61 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05149 DNA DGENE

TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05149 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 62 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05148 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05148 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05113-160 represent exon/intron junction sequences of the hMSH5 gene.

L7 ANSWER 63 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05173 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome

INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05173 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 64 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05174 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05174 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 65 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05172 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703

DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05172 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 66 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05171 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05171 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 67 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05170 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05170 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5**

. Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 68 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05169 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05169 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 69 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05168 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05168 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a

predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 70 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05167 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05167 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 71 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05166 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05166 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene

confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 72 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05165 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05165 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 73 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05189 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05189 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 74 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05188 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05188 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 75 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05187 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05187 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 76 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05186 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome

INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05186 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 77 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05185 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05185 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 78 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05184 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703

DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05184 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 79 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05183 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05183 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 80 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05182 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05182 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5**

. Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 81 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05181 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05181 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 82 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05180 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05180 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a

predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 83 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05179 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05179 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 84 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05178 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05178 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene

confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 85 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05177 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05177 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 86 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05176 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05176 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 87 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05175 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05175 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 88 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05203 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05203 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 89 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05202 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of

disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05202 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 90 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05201 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05201 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 91 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05200 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.

PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05200 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 92 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05199 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05199 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 93 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05198 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703

DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05198 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 94 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05197 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05197 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 95 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05196 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]

AN AAX05196 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 96 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05195 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05195 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 97 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05194 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05194 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is

used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 98 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05193 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05193 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 99 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05192 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05192 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a

predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 100 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05191 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05191 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 101 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05190 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05190 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to

identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05164-194 represent introns of the hMSH5 gene.

L7 ANSWER 102 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05213 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05213 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05210-211 represent RT-PCR primers used for cloning the 3' end of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 103 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05212 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05212 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05210-211 represent RT-PCR primers used for cloning the 3' end of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 104 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05211 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05211 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05210-211 represent primers based on the hMSH5 gene that is used for the PCR amplification of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 105 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05210 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05210 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05210-211 represent primers based on the hMSH5 gene that is used for the PCR amplification of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 106 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05209 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05209 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05205-209 represent introns of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 107 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05208 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05208 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05205-209 represent introns of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 108 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05207 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** -

used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05207 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05205-209 represent introns of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 109 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05206 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05206 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05205-209 represent introns of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 110 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05205 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N

PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05205 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05205-209 represent introns of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 111 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX05204 DNA DGENE
TITLE: New isolated human DNA mismatch repair gene, **MSH5** - used for developing products for the diagnosis and therapy of disorders such as cancer, infertility and Down's syndrome
INVENTOR: Kolodner R; Winand N
PATENT ASSIGNEE: (DAND)DANA FARBER CANCER INST INC.
PATENT INFO: WO 9901550 A1 19990114 114p
APPLICATION INFO: WO 1998-US13850 19980702
PRIORITY INFO: US 1997-51686 19970703
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-106052 [09]
AN AAX05204 DNA DGENE
AB The invention relates to a human DNA mismatch repair gene, **MSH5** . Host cells containing a vector comprising the **MSH5** gene is used for the recombinant production of the **MSH5** protein. The **MSH5** gene product is required for meiotic crossing over and segregation of chromosomes during meiosis. The products can be used for detecting an alteration in a mammalian gene as indicative of a predisposition to malignant growth of cells or indicative of a predisposition to a malady associated with inappropriate meiotic segregation such as infertility or Down's syndrome. The alterations can also be used for diagnosing a DNA mismatch pair defective tumour and for prognosis of an individual having cancer. Moreover, defects in this gene confer resistance to alkylating agents. The products can also be used to identify therapeutic agents effective against **MSH5** defects and agents that affect the gene. The products can also be used for gene therapy. Sequences AAX05195-204 represent exon/intron junction sequences of the murine **MSH5** (mMSH5) gene.

L7 ANSWER 112 OF 115 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAX32694 cDNA DGENE
TITLE: Use of MutS homologs - for developing methods and products for use in the study, detection and treatment of e.g. tumorigenesis, apoptosis, ageing and foetal development
INVENTOR: Acharya S; Fishel R; Gradia S
PATENT ASSIGNEE: (UYJE-N)UNIV JEFFERSON THOMAS.
PATENT INFO: WO 9910369 A1 19990304 160p
APPLICATION INFO: WO 1998-US17914 19980828

PRIORITY INFO: US 1998-93935 19980723
US 1997-57136 19970828
US 1997-66977 19971128
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1999-204647 [17]
AN AAX32694 cDNA DGENE
AB The invention relates to compositions, kits and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins. The products comprise a MutS homolog which binds to a mismatched region of duplex DNA molecule in the presence of ADP. The use of MutL homolog derivatives in combination with MutS homologs are also included. The methods and products can be used for the study, detection and treatment of events involved in tumourigenesis, apoptosis, ageing and foetal development.

L7 ANSWER 113 OF 115 USPATFULL
ACCESSION NUMBER: 2002:112540 USPATFULL
TITLE: Compositions, kits, and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins
INVENTOR(S): Fishel, Richard A., Penn Valley, PA, UNITED STATES
Gradia, Scott, Philadelphia, PA, UNITED STATES
Acharya, Samir, Philadelphia, PA, UNITED STATES
PATENT ASSIGNEE(S): Thomas Jefferson University, Philadelphia, PA, UNITED STATES, 19107-5587 (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002058275	A1	20020516
APPLICATION INFO.:	US 2001-934909	A1	20010822 (9)

RELATED APPLN. INFO.: Division of Ser. No. US 1998-143571, filed on 28 Aug 1998, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-93935P	19980723 (60)
	US 1997-66977P	19971128 (60)
	US 1997-57136P	19970828 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P., ONE COMMERCE SQUARE, 2005 MARKET STREET, SUITE 2200, PHILADELPHIA, PA, 19103
NUMBER OF CLAIMS: 55
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 25 Drawing Page(s)
LINE COUNT: 4648
AB Compositions, and products comprising a MutS homolog which binds to a mismatched region of a duplex DNA molecule in the presence of ADP are provided, as are methods of binding MutS homologs to mismatched DNA in the presence of ADP. The use of MutL homolog derivatives in combination with MutS homologs is also included. Nonhuman mammals which are nullizygous for both Msh2 and p53 are also provided, as are methods of making and using the same.

L7 ANSWER 114 OF 115 USPATFULL
ACCESSION NUMBER: 2002:72639 USPATFULL
TITLE: Mammalian SUV39H2 proteins and isolated DNA molecules encoding them
INVENTOR(S): Jenuwein, Thomas, Wien, AUSTRIA
O'Carroll, Donal, Greystones, IRELAND
Rea, Stephen, Headford, IRELAND

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2002039776	A1	20020404	
APPLICATION INFO.:	US 2001-876224	A1	20010608	(9)

	NUMBER	DATE	
PRIORITY INFORMATION:	EP 2000-112479	20000609	
	EP 2000-112345	20000609	
	US 2000-224173P	20000809	(60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: STERNE, KESSLER, GOLDSTEIN & FOX PLLC, 1100 NEW YORK AVENUE, N.W., SUITE 600, WASHINGTON, DC, 20005-3934
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 34 Drawing Page(s)
LINE COUNT: 2674
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Murine and human Suv39h2 polypeptide and DNA molecules encoding them. Suv39h2 is a novel member of the Suv3-9 gene family. Suv39h2 is a novel component of meiotic higher order chromatin. It has histone methyltransferase activity and is required, in combination with Suv39h1, for male gametogenesis. Suv39h2 can be used in screening methods to identify modulators of its methyltransferase activity, which are useful in cancer therapy and for male contraception.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 115 OF 115 USPATFULL
ACCESSION NUMBER: 2001:235086 USPATFULL
TITLE: Compositions, kits, and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins
INVENTOR(S): Fishel, Richard A., Penn Valley, PA, United States
Gradia, Scott, Philadelphia, PA, United States
Acharya, Samir, Philadelphia, PA, United States
PATENT ASSIGNEE(S): Thomas Jefferson University, Philadelphia, PA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6333153	B1	20011225	
APPLICATION INFO.:	US 1998-143571		19980828	(9)

	NUMBER	DATE	
PRIORITY INFORMATION:	US 1998-93935P	19980723	(60)
	US 1997-66977P	19971128	(60)
	US 1997-57136P	19970828	(60)

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Zitomer, Stephanie W.
LEGAL REPRESENTATIVE: Akin, Gump, Strauss, Hauer & Feld, L.L.P.
NUMBER OF CLAIMS: 88
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 49 Drawing Figure(s); 25 Drawing Page(s)
LINE COUNT: 4750
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Compositions, and products comprising a MutS homolog which binds to a mismatched region of a duplex DNA molecule in the presence of ADP are provided, as are methods of binding MutS homologs to mismatched DNA in the presence of ADP. The use of MutL homolog derivatives in combination with MutS homologs is also included. Nonhuman mammals which are nullizygous for both Msh2 and p53 are also provided, as are methods of

making and using the same.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=>

L16 ANSWER 1 OF 25 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2002:157886 BIOSIS
DN PREV200200157886
TI Human hMSH4: Identification of a functional splicing variant and interaction with von Hippel-Lindau-binding-protein-1 (VBP1.
AU Her, Chengtao (1)
CS (1) School of Molecular Biosciences, Washington State University, 627 Fulmer Hall, Pullman, WA, 99164 USA
SO Molecular Biology of the Cell, (Nov, 2001) Vol. 12, No. Supplement, pp. 318a. http://www.molbiolcell.org/. print.
Meeting Info.: 41st Annual Meeting of the American Society for Cell Biology Washington DC, USA December 08-12, 2001
ISSN: 1059-1524.
DT Conference
LA English
CC General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
Genetics and Cytogenetics - General *03502
Genetics and Cytogenetics - Human *03508
Biochemical Studies - Nucleic Acids, Purines and Pyrimidines *10062
BC Hominidae 86215
IT Major Concepts
Molecular Genetics (Biochemistry and Molecular Biophysics)
IT Parts, Structures, & Systems of Organisms
cell
IT Chemicals & Biochemicals
DNA: repair, replication; human MutS homolog-4; human **MutS homolog-5**; vin Hippel-Lindau-binding protein-1
IT Miscellaneous Descriptors
meiosis; protein-protein interaction; Meeting Abstract
ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae)
ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Primates; Vertebrates

L16 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
AN 2001:93602 CAPLUS
DN 135:368128
TI Mouse MutS homolog 4 is predominantly expressed in testis and interacts with **MutS homolog 5**
AU Her, Chengtao; Wu, Xiling; Bailey, Susan M.; Doggett, Norman A.
CS Bioscience Division, Los Alamos National Laboratory, Los Alamos, NM, 87545, USA
SO Mammalian Genome (2001), 12(1), 73-76
CODEN: MAMGEC; ISSN: 0938-8990
PB Springer-Verlag New York Inc.
DT Journal
LA English
CC 6-3 (General Biochemistry)
Section cross-reference(s): 3, 13
AB We have isolated and characterized a cDNA that encodes the mouse ortholog of the human hMSH4. Both Northern and mRNA dot blot analyses indicate that mouse Msh4 is expressed predominantly in testis. Mouse Msh4 protein specifically interacts with Msh5 protein -- suggesting these two proteins might function in the same biol. pathway during meiosis. Besides their involvement in DNA mismatch repair, mouse Mlh1 and Pms2 also play functional roles in meiosis. Whether the function of Msh4 is restricted to meiosis and whether it assocs. with Mlh1 and/or Pms2 during meiosis remain to be clarified in future studies.
ST mouse MutS homolog 4 interaction testis mRNA; sequence cDNA protein mouse MutS homolog Msh4
IT Proteins, specific or class
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP

(Properties); BIOL (Biological study); PROC (Process)
(MSH4; mouse MutS homolog 4 is predominantly expressed in testis and interacts with **MutS homolog 5**)
IT Proteins, specific or class
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(MSH5; mouse MutS homolog 4 is predominantly expressed in testis and interacts with **MutS homolog 5**)
IT Molecular recognition
Mouse
Protein sequences
Testis
cDNA sequences
(mouse MutS homolog 4 is predominantly expressed in testis and interacts with **MutS homolog 5**)
IT mRNA
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(mouse MutS homolog 4 is predominantly expressed in testis and interacts with **MutS homolog 5**)
IT 374643-81-9, Protein MSH4 (mouse strain BALB/c)
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(amino acid sequence; mouse MutS homolog 4 is predominantly expressed in testis and interacts with **MutS homolog 5**
)
IT 325950-58-1, GenBank AF298655
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(nucleotide sequence; mouse MutS homolog 4 is predominantly expressed in testis and interacts with **MutS homolog 5**
)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Baker, S; Cell 1995, V82, P309 CAPLUS
(2) Baker, S; Nat Genet 1996, V13, P336 CAPLUS
(3) Bocker, T; Cancer Res 1999, V59, P816 CAPLUS
(4) Buermeyer, A; Annu Rev Genet 1999, V33, P533 CAPLUS
(5) deVries, S; Genes Dev 1999, V13, P523 CAPLUS
(6) Edelmann, W; Nat Genet 1999, V21, P123 CAPLUS
(7) Her, C; Genomics 1998, V52, P50 CAPLUS
(8) Her, C; Mamm Genome 1999, V10, P1054 CAPLUS
(9) Hollingsworth, N; Genes Dev 1995, V9, P1728 CAPLUS
(10) Johnson, R; J Biol Chem 1996, V271, P7285 CAPLUS
(11) Kolodner, R; Genes Dev 1996, V10, P1433 CAPLUS
(12) Marsischky, G; Genes Dev 1996, V10, P407 CAPLUS
(13) New, L; Mol Gen Genet 1993, V239, P97 CAPLUS
(14) Paquis-Flucklinger, V; Genomics 1997, V44, P188 CAPLUS
(15) Pochart, P; J Biol Chem 1997, V272, P30345 CAPLUS
(16) Ross-Macdonald, P; Cell 1994, V79, P1069 CAPLUS
(17) Santucci-Darmanin, S; Mamm Genome 1999, V10, P423 CAPLUS
(18) Winand, N; Genomics 1998, V53, P69 CAPLUS
(19) Zalevsky, J; Genetics 1999, V153, P1271 CAPLUS

L16 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
AN 2000:441556 CAPLUS
DN 133:72491
TI Knockout mice with MSH5 gene deleted and their uses
IN Edelmann, Winfried; Kolodner, Richard D.; Pollard, Jeffrey W.; Kucherlapati, Raju S.
PA Albert Einstein College of Medicine, USA; Dana-Farber Cancer Institute
SO PCT Int. Appl., 44 pp.
CODEN: PIXXD2
DT Patent
LA English

IC ICM A01K067-027
ICS C07K014-82; A61K049-00; C12N005-10; G01N033-50; A61K038-17; C12Q001-68
CC 14-1 (Mammalian Pathological Biochemistry)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000036910	A1	20000629	WO 1999-US30958	19991222

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP 1139732	A1	20011010	EP 1999-967642	19991222

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

PRAI US 1998-113487P P 19981222
WO 1999-US30958 W 19991222
AB An animal, e.g., transgenic mouse, in which the MSH5 gene is misexpressed. The animal is useful for screening treatments for a no. of conditions. Methods for identifying contraceptive agents are also described. Heterozygous and homozygous knockout mice were constructed by std. methods of stem cell transformation and breeding. Homozygous knockout mice were sterile. Males show normal development of Leydig and Sertoli cells but no pachytene spermatocytes. Females did not show estrous and did not mate.
ST MSH5 gene knockout mouse fertility; ovary spermatogenesis MSH5 gene knockout mouse
IT Gene, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MSH5 (**MutS homolog 5**); knockout mice with MSH5 gene deleted and their uses)
IT Ovary
(MSH5 gene and development of; knockout mice with MSH5 gene deleted and their uses)
IT Spermatogenesis
(MSH5 gene and; knockout mice with MSH5 gene deleted and their uses)
IT Fertility
(agents for, MSH5 knockout mice in screening for; knockout mice with MSH5 gene deleted and their uses)
IT Fertility
(disorder, in MSH5 knockout mice; knockout mice with MSH5 gene deleted and their uses)
IT Mouse
(knockout mice with MSH5 gene deleted and their uses)
IT 278810-64-3, 1: PN: WO0036910 SEQID: 1 unclaimed DNA 278810-65-4, 2: PN: WO0036910 SEQID: 2 unclaimed DNA 278810-66-5, 3: PN: WO0036910 SEQID: 3 unclaimed DNA 278810-67-6, 4: PN: WO0036910 SEQID: 4 unclaimed DNA
RL: PRP (Properties)
(unclaimed nucleotide sequence; knockout mice with MSH5 gene deleted and their uses)
RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bawa, S; Cancer Research 1997
(2) Dana Farber Cancer Inst Inc; WO 9901550 A 1999 CAPLUS
(3) de Vries, S; Genes & Development 1999, V13(5), P523 CAPLUS
(4) Edelmann, W; Cell V85(7), P1125 CAPLUS
(5) Hollingsworth, N; Genes & Development 1995, V9(14), P1728 CAPLUS
(6) Pochart, P; Journal of Biological Chemistry 1997, V272(48), P30345 CAPLUS
(7) Ross-McDonald, P; Cell 1994, V79(6), P1069
(8) Winand, N; Genomics 1998, V53(1), P69 CAPLUS

L16 ANSWER 4 OF 25 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
AN 2000-11710 BIOTECHDS
TI New transgenic mouse comprising a misexpressed **MutS homolog 5** (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders;
involving vector-mediated MutS-5 gene transfer for expression in mouse cell
AU Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PA Albert-Einstein-Coll.Med.; Dana-Farber-Cancer-Inst.
LO Bronx, NY, USA; Boston, MA, USA.
PI WO 2000036910 29 Jun 2000
AI WO 1999-US30958 22 Dec 1999
PRAI US 1998-113487 22 Dec 1998
DT Patent
LA English
OS WPI: 2000-442485 [38]
AB A transgenic mouse comprising a misexpressed **MutS homolog 5** (MHS5) gene is claimed. Also claimed are: a method of evaluating a fertility treatment; a method for identifying a compound which modulates the activity of MSH5; and a method of identifying a subject having or at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The MSH5 gene is disrupted by removal of DNA encoding all or part of the MSH5 protein. The animal is homozygous or heterozygous for the disrupted gene. The disruption is an insertion or a deletion. In the method, the treatment is evaluated in vivo or in vitro. (39pp)
CC D PHARMACEUTICALS; D5 Other Pharmaceuticals; D PHARMACEUTICALS; D7 Clinical Genetic Techniques; A GENETIC ENGINEERING AND FERMENTATION; A1 Nucleic Acid Technology
CT TRANSGENIC MOUSE CONSTRUCTION, VECTOR-MEDIATED MUTS-5 GENE TRANSFER, EXPRESSION IN MOUSE CELL, ANTISENSE, ANTIBODY, EMBRYONIC STEM CELL, BLASTOCYTE, APPL., DRUG SCREENING, FERTILITY THERAPY TESTING CONTRACEPTIVE TRANSGENIC ANIMAL MAMMAL (VOL.19, NO.20)

L16 ANSWER 5 OF 25 SCISEARCH COPYRIGHT 2002 ISI (R)
AN 2000:777481 SCISEARCH
GA The Genuine Article (R) Number: 362EZ
TI Caenorhabditis elegans msh-5 is required for both normal and radiation-induced meiotic crossing over but not for completion of meiosis
AU Kelly K O; Dernburg A F; Stanfield G M; Villeneuve A M (Reprint)
CS STANFORD UNIV, SCH MED, DEPT DEV BIOL, BECKMAN CTR, 279 CAMPUS DR, B300, STANFORD, CA 94305 (Reprint); STANFORD UNIV, SCH MED, DEPT DEV BIOL, BECKMAN CTR, STANFORD, CA 94305; STANFORD UNIV, SCH MED, DEPT GENET, STANFORD, CA 94305
CYA USA
SO GENETICS, (OCT 2000) Vol. 156, No. 2, pp. 617-630.
Publisher: GENETICS, 428 EAST PRESTON ST, BALTIMORE, MD 21202.
ISSN: 0016-6731.
DT Article; Journal
FS LIFE; AGRI
LA English
REC Reference Count: 62
AB Crossing over and chiasma formation during Caenorhabditis elegans meiosis require msh-5 which encodes a conserved germline-specific MutS family member, msh-5 mutant oocytes lack chiasmata between homologous chromosomes, and crossover frequencies are severely reduced in both oocyte and spermatocyte meiosis. Artificially induced DNA breaks do not bypass the requirement for msh-5, suggesting that msh-5 functions after the initiation step of meiotic recombination. msh-5 mutants are apparently

competent to repair breaks induced during meiosis, but accomplish repair in a way that does not lead to crossovers between homologs. These results combine with data from budding yeast to establish a conserved role for Msh5 proteins in promoting the crossover outcome of meiotic recombination events. Apart from the crossover deficit, progression through meiotic prophase is largely unperturbed in msh-5 mutants. Homologous chromosomes are fully aligned at the pachytene stage, and germ cells survive to complete meiosis and gametogenesis with high efficiency. Our demonstration that artificially induced breaks generate crossovers and chiasmata using the normal meiotic recombination machinery suggests (1) that association of breaks with a preinitiation complex is not a prerequisite for entering the meiotic recombination path way and (2) that the decision for a subset of recombination events to become crossovers is made after the initiation step.

CC GENETICS & HEREDITY

STP KeyWords Plus (R): DOUBLE-STRAND BREAKS; HOMOLOGOUS CHROMOSOME SYNAPSIS; SACCHAROMYCES-CEREVISIAE; MISMATCH REPAIR; **MUTS HOMOLOG -5**; BUDDING YEAST; C-ELEGANS; RECOMBINATION; GENE; SPO11

RE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)
*C EL SEQ CONS	1998	282	2012	SCIENCE
ALANI E	1996	16	5604	MOL CELL BIOL
ALANI E	1997	17	2436	MOL CELL BIOL
BERGERAT A	1997	386	414	NATURE
BOCKER T	1999	59	816	CANCER RES
BRENNER S	1974	77	71	GENETICS
CAO L	1990	61	1089	CELL
CERVANTES M D	2000	5	883	MOL CELL
CHU S	1998	282	699	SCIENCE
DERNBURG A F	1998	94	387	CELL
DERNBURG A F	1999		125	CHROMOSOME STRUCTURA
DERNBURG A F	2000	14	1578	GENE DEV
DEVRIES S S	1999	13	523	GENE DEV
DURBIN R	1991			C ELEGANS DATABASE D
EDELMANN W	1999	21	123	NAT GENET
EISEN J A	1998	26	4291	NUCLEIC ACIDS RES
EPSTEIN H F	1995			CAENORHABDITIS ELEGA
GARTNER A	2000	5	435	MOL CELL
GEISEL T S	1960			GREEN EGGS HAM
GILBERTSON L A	1996	144	27	GENETICS
GUMIENNY T L	1999	126	1011	DEVELOPMENT
HABER L T	1991	10	2707	EMBO J
HABER L T	1988	170	197	J BACTERIOL
HASTINGS P J	1988	9	61	BIOESSAYS
HAWLEY R S	1988		497	GENETIC RECOMBINATIO
HER C	1998	52	50	GENOMICS
HER C T	1999	10	1054	MAMM GENOME
HERMAN R K	1982	102	379	GENETICS
HODGKIN J	1979	91	67	GENETICS
HOLLINGSWORTH N M	1995	9	1728	GENE DEV
JONES G H	1987		213	MEIOSIS
KEENEY S	1997	88	375	CELL
KLAPHOLZ S	1985	110	187	GENETICS
KOSTRIKEN R	1983	35	167	CELL
KOSTRIKEN R	1984	49	89	COLD SPRING HARB SYM
LIN Y K	1994	136	769	GENETICS
MALKOVA A	1996	143	741	GENETICS
MCGILL C	1989	57	459	CELL
MCKIM K S	1998	12	2932	GENE DEV
MCKIM K S	1998	279	876	SCIENCE
MELLO C C	1991	10	3959	EMBO J
NICOLL M	1997	388	200	NATURE
PAQUES F	1999	63	349	MICROBIOL MOL BIOL R

PETES T D	1991		407	MOL CELLULAR BIOL YE
PITTMAN D L	1998	1	697	MOL CELL
POCHART P	1997	272	30345	J BIOL CHEM
RIDDLE D L	1997	2		C ELEGANS
ROEDER G S	1997	11	2600	GENE DEV
ROSSMACDONALD P	1994	79	1069	CELL
SAMBROOK J	1989			MOL CLONING LAB MANU
SCHEDL T	1997	2	241	C ELEGANS
STORLAZZI A	1996	93	9043	P NATL ACAD SCI USA
SUN H	1989	338	87	NATURE
THORNE L W	1993	134	29	GENETICS
VILLENEUVE A M	1994	136	887	GENETICS
WEINERT T	1989	12	145	J CELL SCI S
WILLIAMS B D	1992	131	609	GENETICS
WINAND N J	1998	53	69	GENOMICS
WOOD W B	1988			NEMATODE CAENORHABDI
YOSHIDA K	1998	1	707	MOL CELL
ZALEVSKY J	1999	153	1271	GENETICS
ZETKA M C	1999	13	2258	GENE DEV

L16 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 3
AN 1999:760873 CAPLUS
DN 132:261227
TI Identification and characterization of the mouse **MutS homolog 5**: Msh5
AU Her, Chengtao; Wu, Xiling; Wan, Wei; Doggett, Norman A.
CS Life Sciences Division, Los Alamos National Laboratory, Los Alamos, NM, 87545, USA
SO Mammalian Genome (1999), 10(11), 1054-1061
CODEN: MAMGEC; ISSN: 0938-8990
PB Springer-Verlag New York Inc.
DT Journal
LA English
CC 3-3 (Biochemical Genetics)
Section cross-reference(s): 6, 13
AB We have identified and characterized the complete cDNA and gene for the mouse **MutS homolog 5** (Msh5), as a step toward understanding the mol. genetic mechanisms involved in the biol. function of this new MutS homologous protein in mammals. The Msh5 cDNA contains a 2502-bp open reading frame (ORF) that encodes an 833-amino acid protein with a predicted mol. wt. of 92.6 kDa, which shares 89.8% amino acid sequence identity with the human hMSH5 protein. Northern blot anal. demonstrated the presence of a Msh5 mRNA approx. 2.9-kb in length, most abundantly expressed in mouse testis. Yeast two-hybrid anal. indicated that the mouse Msh5 protein pos. interacted with the human hMSH4 protein-suggesting that Msh5 shares common functional properties with its human counterpart. Sequence and structural analyses show that the mouse gene Msh5 spans approx. 18 kb and contains 24 exons that range in length from 36 bp for exon 7 to 392 bp for exon 1. Structural comparison with the human hMSH5 gene revealed that all of the Msh5 internal exons, but not introns, are conserved in length with the human hMSH5. The Msh5 gene is located on mouse Chromosome (Chr) 17 in a location that is syntenic to the region of human Chr 6 harboring the hMSH5 gene. The identification and characterization of Msh5 will facilitate studies of the potential functional roles of this new member of the MutS family.
ST mouse MutS homolog Msh5 cDNA sequence; gene Msh5 mapping expression mouse
IT Proteins, specific or class
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(MSH4, mouse Msh5 protein interacted with human; identification and characterization of mouse **MutS homolog 5**: Msh5)
IT Proteins, specific or class
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(Msh5 (mouse **MutS homolog 5**);
identification and characterization of mouse **MutS homolog 5**: Msh5)
IT Testis
(Msh5 most abundantly expressed in; identification and characterization of mouse **MutS homolog 5**: Msh5)
IT Genetic mapping
(Msh5, structure and localization on mouse chromosome 17; identification and characterization of mouse **MutS homolog 5**: Msh5)
IT mRNA
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(Msh5, tissue distribution; identification and characterization of mouse **MutS homolog 5**: Msh5)
IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MutS; identification and characterization of mouse **MutS homolog 5**: Msh5)
IT cDNA sequences
(for Msh5 protein of mouse; identification and characterization of mouse **MutS homolog 5**: Msh5)
IT Mouse
(identification and characterization of mouse **MutS homolog 5**: Msh5)
IT Chromosome
(mouse 17, Msh5 gene mapped to, syntenic to human Msh5; identification and characterization of mouse **MutS homolog 5**: Msh5)
IT Protein sequences
(of Msh5 protein of mouse; identification and characterization of mouse **MutS homolog 5**: Msh5)
IT 219780-09-3, Protein (mouse gene MSH5)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; identification and characterization of mouse **MutS homolog 5**: Msh5)
IT 248227-79-4, GenBank AF146227
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(nucleotide sequence; identification and characterization of mouse **MutS homolog 5**: Msh5)
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Acharya, S; Proc Natl Acad Sci USA 1996, V93, P13629 CAPLUS
(2) Akiyama, Y; Cancer Res 1997, V57, P3920 CAPLUS
(3) Alani, E; Mol Cell Biol 1997, V17, P2436 CAPLUS
(4) Altschul, S; J Mol Biol 1990, V215, P403 CAPLUS
(5) Baker, S; Cell 1995, V82, P309 CAPLUS
(6) Baker, S; Nat Genet 1996, V13, P336 CAPLUS
(7) Bawa, S; Cancer Res 1997, V57, P2715 CAPLUS
(8) Bocker, T; Cancer Res 1999, V59, P816 CAPLUS
(9) Boguski, M; Nat Genet 1995, V10, P369 CAPLUS
(10) Borresen, A; Hum Mol Genet 1995, V4, P2065 MEDLINE
(11) Corradi, A; Genomics 1996, V36, P288 CAPLUS
(12) de Vries, S; Genes Dev 1999, V13, P523 CAPLUS
(13) Devereux, J; Nucleic Acids Res 1984, V12, P387 CAPLUS
(14) Edelmann, W; Nat Genet 1999, V21, P123 CAPLUS
(15) Fishel, R; Cell 1993, V75, P1027 CAPLUS
(16) Fishel, R; Curr Opin Gene Dev 1997, V7, P105 CAPLUS
(17) Frohman, M; No Publication Given 1988

L16 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 4
AN 1999:53111 CAPLUS
DN 130:220968

TI Mammalian **MutS homolog 5** is required for chromosome pairing in meiosis

AU Edelmann, Winfried; Cohen, Paula E.; Kneitz, Burkhard; Winand, Nena; Lia, Marie; Heyer, Joerg; Kolodner, Richard; Pollard, Jeffrey W.; Kucherlapati, Raju

CS Department of Cell Biology, Albert Einstein College of Medicine, Bronx, NY, 10461, USA

SO Nature Genetics (1999), 21(1), 123-127
CODEN: NGENEC; ISSN: 1061-4036

PB Nature America

DT Journal

LA English

CC 13-6 (Mammalian Biochemistry)

AB MSH5 (**MutS homolog 5**) is a member of a family of proteins known to be involved in DNA mismatch repair. Germline mutations in MSH2, MLH1 and GTBP (also known as MSH6) cause hereditary non-polyposis colon cancer (HNPCC) or Lynch syndrome. Inactivation of Msh2, Mlh1, Gtmbp (also known as Msh6) or Pms2 in mice leads to hereditary predisposition to intestinal and other cancers. Early studies in yeast revealed a role for some of these proteins, including Msh5, in meiosis. Gene targeting studies in mice confirmed roles for Mlh1 and Pms2 in mammalian meiosis. To assess the role of Msh5 in mammals, we generated and characterized mice with a null mutation in Msh5. Msh5-/- mice are viable but sterile. Meiosis in these mice is affected due to the disruption of chromosome pairing in prophase I. We found that this meiotic failure leads to a diminution in testicular size and a complete loss of ovarian structures. Our results show that normal Msh5 function is essential for meiotic progression and, in females, gonadal maintenance.

ST Msh5 protein chromosome pairing meiosis spermatogenesis oogenesis testis ovary

IT Gene, animal
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(Msh5 (**MutS homolog 5**); mammalian (mouse)
MutS homolog 5 (Msh5) is required for chromosome pairing in meiosis, maintenance of testicular size and presence of ovarian structures)

IT Sperm
(depletion in Msh5-/- mice; mammalian (mouse) **MutS homolog 5** (Msh5) is required for chromosome pairing in meiosis, maintenance of testicular size and presence of ovarian structures)

IT Oogenesis
Spermatogenesis
(disruption in Msh5-/- mice; mammalian (mouse) **MutS homolog 5** (Msh5) is required for chromosome pairing in meiosis, maintenance of testicular size and presence of ovarian structures)

IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(gene Msh5 (**MutS homolog 5**); mammalian (mouse) **MutS homolog 5** (Msh5) is required for chromosome pairing in meiosis, maintenance of testicular size and presence of ovarian structures)

IT Sterility
(in Msh5-/- mice; mammalian (mouse) **MutS homolog 5** (Msh5) is required for chromosome pairing in meiosis, maintenance of testicular size and presence of ovarian structures)

IT Ovary
Testis
(mammalian (mouse) **MutS homolog 5** (Msh5) is required for chromosome pairing in meiosis, maintenance of testicular size and presence of ovarian structures)

IT Egg

(oocyte, depletion in Msh5-/- mice; mammalian (mouse) **MutS homolog 5** (Msh5) is required for chromosome pairing in meiosis, maintenance of testicular size and presence of ovarian structures)

IT Chromosome
(pairing of; mammalian (mouse) **MutS homolog 5** (Msh5) is required for chromosome pairing in meiosis, maintenance of testicular size and presence of ovarian structures)

IT Meiosis
(prophase, I, chromosome pairing in; mammalian (mouse) **MutS homolog 5** (Msh5) is required for chromosome pairing in meiosis, maintenance of testicular size and presence of ovarian structures)

RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Akiyama, Y; Cancer Res 1997, V57, P3920 CAPLUS
(2) Baker, S; Cell 1995, V82, P309 CAPLUS
(3) Baker, S; Nature Genet 1996, V13, P336 CAPLUS
(4) Bronner, C; Nature 1994, V368, P258 CAPLUS
(5) Counce, S; Chromosoma 1973, V44, P231 MEDLINE
(6) de Wind, N; Cell 1995, V82, P321 CAPLUS
(7) Edelmann, W; Cell 1996, V85, P1125 CAPLUS
(8) Edelmann, W; Cell 1997, V91, P467 CAPLUS
(9) Enders, G; Dev Biol 1994, V163, P331 CAPLUS
(10) Fishel, R; Cell 1993, V75, P1027 CAPLUS
(11) Hollingsworth, N; Genes Dev 1995, V9, P1728 CAPLUS
(12) Ioffe, E; Proc Natl Acad Sci USA 1995, V92, P7357 CAPLUS
(13) Kolodner, R; Genes Dev 1996, V10, P1433 CAPLUS
(14) Leach, F; Cell 1993, V75, P1215 CAPLUS
(15) McDonough, P; Pediatr Clin North Am 1972, V19, P631 MEDLINE
(16) Miyaki, M; Nature Genet 1997, V17, P271 CAPLUS
(17) Modrich, P; Annu Rev Biochem 1996, V65, P101 CAPLUS
(18) Moens, P; Curr Top Dev Biol 1998, V37, P241 CAPLUS
(19) Papadopoulos, N; Science 1994, V263, P1625 CAPLUS
(20) Pittman, D; Mol Cell 1998, V1, P697 CAPLUS
(21) Plug, A; J Cell Science 1998, V111, P413 CAPLUS
(22) Plug, A; Proc Natl Acad Sci USA 1996, V93, P5920 CAPLUS
(23) Prolla, T; Mol Cell Biol 1994, V14, P407 CAPLUS
(24) Reitmair, A; Nature Genet 1995, V11, P64 CAPLUS
(25) Ross-Macdonald, P; Cell 1994, V79, P1069 CAPLUS
(26) Singh, R; Anat Rec 1966, V155, P369
(27) Spyropoulos, B; Methods Mol Biol 1994, V33, P131 CAPLUS
(28) Wassarman, P; Annu Rev Biochem 1988, V57, P415 CAPLUS
(29) Winand, N; Genomics 1998, V53, P69 CAPLUS
(30) Yoshida, K; Mol Cell 1998, V1, P707 CAPLUS

L16 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2002 ACS

AN 1998:632659 CAPLUS
DN 130:1059

TI Cloning, structural characterization, and chromosomal localization of the human orthologue of Saccharomyces cerevisiae MSH5 gene

AU Her, Chengtao; Doggett, Norman A.
CS Life Sci. Div., Cent. Human Genome Studies, Los Alamos Natl. Lab., Los Alamos, NM, 87545, USA

SO Genomics (1998), 52(1), 50-61
CODEN: GNMCEP; ISSN: 0888-7543
PB Academic Press
DT Journal
LA English
CC 3-3 (Biochemical Genetics)
Section cross-reference(s): 6, 13

AB We have cloned and characterized the human ortholog of the Saccharomyces cerevisiae **MutS homolog 5** (MSH5) cDNA, as well as the human gene that encodes the MSH5 cDNA, as a step toward understanding the mol. genetic mechanisms involved in the biol. function

of this novel human protein. The identified cDNA contains a 2505-bp open reading from (ORF) that encodes an 834-amino-acid polypeptide with a predicted mol. mass of 92.9 kDa. The amino acid sequence encoded by this cDNA includes sequence motifs that are conserved in all known MutS homologs existing in bacteria to humans. The cDNA appears, on the basis of amino acid sequence anal., to be a member of the MutS family and shares 30% sequence identity with that of S. cerevisiae MSH5, a yeast gene that plays a crit. role in facilitating crossover during meiosis. Northern blot anal. demonstrated the presence of a 2.9-kg human MSH5 mRNA species in all human tissues tested, but the highest expression was in human testis, an organ contg. cells that undergo const. DNA synthesis and meiosis. The expression pattern of human MSH5 resembled that of the previously identified human MutS homologs MSH2, MSH3, and MSH6-genes that are involved in the pathogenesis of hereditary nonpolyposis colorectal cancer (HNPCC). In an effort to expedite the search for potential disease assocn. with this new human MutS homolog, we have also detd. the chromosomal location and structure of the human MSH5 locus. Sequence and structural characterization demonstrated that MSH5 spans approx. 25 kb and contains 26 exons that range in length from 36 bp for exon 8 to 254 bp for exon 25. MSH5 has been mapped to human chromosome band 6p21.3 by fluorescence in situ hybridization. Knowledge of the sequence and gene structure of MSH5 will now enable studies of the possible roles MSH5 may play in meiosis and/or DNA replicative mismatch repair. (c) 1998 Academic Press.

ST chromosome 6 mapping human gene MSH5 protein sequence

IT Gene, animal
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(MSH5; cloning, structural characterization, and chromosomal localization of human gene MSH5)

IT DNA sequences
Genetic mapping
Protein motifs
Protein sequences
Testis
cDNA sequences
(cloning, structural characterization, and chromosomal localization of human gene MSH5)

IT mRNA
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(cloning, structural characterization, and chromosomal localization of human gene MSH5)

IT Gene
(expression; cloning, structural characterization, and chromosomal localization of human gene MSH5)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(gene MSH5; cloning, structural characterization, and chromosomal localization of human gene MSH5)

IT Chromosome
(human 6; cloning, structural characterization, and chromosomal localization of human gene MSH5)

IT Genetic element
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(tsp (transcription start point); cloning, structural characterization, and chromosomal localization of human gene MSH5)

IT 215797-75-4
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; cloning, structural characterization, and chromosomal localization of human gene MSH5)

IT 207662-23-5, GenBank AF048986 207662-24-6, GenBank AF048987

207662-25-7, GenBank AF048988 207662-26-8, GenBank AF048989
207662-27-9, GenBank AF048990 207662-28-0, GenBank AF048991
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(nucleotide sequence; cloning, structural characterization, and chromosomal localization of human gene MSH5)

RE.CNT 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Acharya, S; Proc Natl Acad Sci USA 1996, V93, P13629 CAPLUS
(2) Alani, E; Mol Cell Biol 1997, V17, P2436 CAPLUS
(3) Altschul, S; J Mol Biol 1990, V215, P403 CAPLUS
(4) Antequera, F; Proc Natl Acad Sci USA 1993, V90, P11995 CAPLUS
(5) Bird, A; Trends Genet 1987, V3, P342 CAPLUS
(6) Boguski, M; Nat Genet 1995, V10, P369 CAPLUS
(7) Borresen, A; Hum Mol Genet 1995, V4, P2065 MEDLINE
(8) Cross, S; Nat Genet 1994, V6, P236 CAPLUS
(9) Devereux, J; Nucleic Acids Res 1984, V12, P387 CAPLUS
(10) Fishel, R; Cell 1993, V75, P1027 CAPLUS
(11) Fishel, R; Curr Opin Gene Dev 1997, V7, P105 CAPLUS
(12) Frohman, M; Proc Natl Acad Sci USA 1988, V85, P8998 CAPLUS
(13) Fujii, H; J Biol Chem 1989, V264, P10057 CAPLUS
(14) Garnier, J; J Mol Biol 1978, V120, P97 CAPLUS
(15) Gradia, S; Cell 1997, V91, P995 CAPLUS
(16) Greenblatt, M; Cancer Res 1994, V54, P4855 CAPLUS
(17) Gribskov, M; Proc Natl Acad Sci USA 1987, V84, P4355 CAPLUS
(18) Guttenbach, M; Hum Genet 1997, V100, P1 MEDLINE
(19) Haber, L; EMBO J 1991, V10, P2707 CAPLUS
(20) Her, C; Genomics 1995, V29, P16 CAPLUS
(21) Hollingsworth, N; Genes Dev 1995, V9, P1728 CAPLUS
(22) Johnson, R; J Biol Chem 1996, V271, P7285 CAPLUS
(23) Kane, M; Cancer Res 1997, V57, P808 CAPLUS
(24) Kolodner, R; Genes Dev 1996, V10, P1433 CAPLUS
(25) Kolodner, R; Genomics 1994, V24, P516 CAPLUS
(26) Larsen, F; Genomics 1992, V13, P1095 CAPLUS
(27) Liu, B; Cancer Res 1994, V54, P4590 CAPLUS
(28) Liu, B; Nat Genet 1995, V9, P48 CAPLUS
(29) Liu, B; Nat Med 1996, V2, P169 CAPLUS
(30) Marsischky, G; Genes Dev 1996, V10, P407 CAPLUS
(31) Mizobuchi, M; BioTechniques 1993, V15, P215
(32) Modrich, P; Annu Rev Genet 1991, V25, P229 CAPLUS
(33) Mount, S; Nucleic Acids Res 1982, V10, P459 CAPLUS
(34) New, L; Mol Gen Genet 1993, V239, P97 CAPLUS
(35) Palombo, F; Science 1995, V268, P1912 CAPLUS
(36) Paquis-Flucklinger, V; Genomics 1997, V44, P188 CAPLUS
(37) Pochart, P; J Biol Chem 1997, V272(48), P30345 CAPLUS
(38) Reenan, R; Genetics 1992, V132, P963 CAPLUS
(39) Ross-Macdonald, P; Cell 1994, V79, P1069 CAPLUS
(40) Schlensog, V; J Bacteriol 1991, V173, P7414 CAPLUS
(41) Su, S; Proc Natl Acad Sci USA 1986, V83, P5057 CAPLUS
(42) Thibodeau, S; Science 1993, V260, P816 CAPLUS
(43) Watanabe, A; Genomics 1996, V31, P311 CAPLUS
(44) Wilson, T; Cancer Res 1995, V55, P5146 CAPLUS

L16 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 5
AN 1995:720723 CAPLUS
DN 123:164939
TI MSH5, a novel MutS homolog, facilitates meiotic reciprocal recombination between homologs in Saccharomyces cerevisiae but not mismatch repair
AU Hollingsworth, Nancy Marie; Ponte, Lisa; Halsey, Carol
CS Dep. Biochemistry and Cell Biology, State Univ. New York, Stony Brook, NY, 11794-5215, USA
SO Genes Dev. (1995), 9(14), 1728-39
CODEN: GEDEEP; ISSN: 0890-9369
DT Journal
LA English

CC 10-4 (Microbial, Algal, and Fungal Biochemistry)
Section cross-reference(s): 3
AB Using a screen designed to identify yeast mutants specifically defective in recombination between homologous chromosomes during meiosis, new alleles of the meiosis-specific genes HOP1, RED1, and MEK1 were obtained. In addn., the screen identified a novel gene designated MSH5 (**MutS homolog 5**). Although Msh5p exhibits strong homol. to the MutS family of proteins, it is not involved in DNA mismatch repair. Diploids lacking the MSH5 gene display decreased levels of spore viability, increased levels of meiosis I chromosome nondisjunction, and decreased levels of reciprocal exchange between, but not within, homologs. Gene conversion is not reduced. Msh5 mutants are phenotypically similar to mutants in the meiosis-specific gene MSH4. Double mutant anal. using msh4 msh5 diploids demonstrates that the 2 genes are in the same epistasis group and therefore are likely to function in a similar process - namely, the facilitation of interhomolog crossovers during meiosis.
ST meiosis recombination gene MSH5 Saccharomyces
IT Meiosis
Recombination, genetic
Saccharomyces cerevisiae
(MSH5 facilitates meiotic reciprocal recombination between homologs in Saccharomyces cerevisiae)
IT Gene, microbial
RL: PRP (Properties)
(MSH5; MSH5 facilitates meiotic reciprocal recombination between homologs in Saccharomyces cerevisiae)
IT Protein sequences
(of Msh5 of Saccharomyces cerevisiae)
IT Deoxyribonucleic acid sequences
(of gene MSH5 of Saccharomyces cerevisiae)
IT 167471-44-5
RL: PRP (Properties)
(amino acid sequence; MSH5 facilitates meiotic reciprocal recombination between homologs in Saccharomyces cerevisiae)
IT 166055-59-0
RL: PRP (Properties)
(nucleotide sequence; MSH5 facilitates meiotic reciprocal recombination between homologs in Saccharomyces cerevisiae)

L16 ANSWER 10 OF 25 GENBANK.RTM. COPYRIGHT 2002

LOCUS (LOC): AH006902 GenBank (R)
GenBank ACC. NO. (GBN): AH006902
SEQUENCE LENGTH (SQL): 15855
MOLECULE TYPE (CI): DNA; linear
DIVISION CODE (CI): Contiguous sequences
DATE (DATE): 5 Oct 1998
DEFINITION (DEF): Homo sapiens **MutS homolog 5** (MSH5), complete cds.
SOURCE: human.
ORGANISM (ORGN): Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
REFERENCE: 1 (bases 1 to 15855)
AUTHOR (AU): Her,C.; Doggett,N.A.
TITLE (TI): Cloning, structural characterization, and chromosomal localization of the human orthologue of Saccharomyces cerevisiae MSH5 gene
JOURNAL (SO): Genomics, 52 (1), 50-61 (1998)
OTHER SOURCE (OS): CA 130:1059
REFERENCE: 2 (bases 1 to 15855)
AUTHOR (AU): Her,C.; Doggett,N.
TITLE (TI): Direct Submission
JOURNAL (SO): Submitted (18-FEB-1998) Life Sciences Divison and

Center for Human Genome Studies, Mail Stop: M888, Los Alamos National Laboratory, Los Alamos, NM 87545, USA

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..15855	/organism="Homo sapiens" /db-xref="taxon:9606" /chromosome="6" /map="6p21.3"

CONTIG (CONT):
join(AF048988.1:1..6820,AF048989.1:1..880,AF048990.1:1..1960,
AF048991.1:1..6195)

L16 ANSWER 11 OF 25 GENBANK.RTM. COPYRIGHT 2002

LOCUS (LOC): AF298655 GenBank (R)
GenBank ACC. NO. (GBN): AF298655
CAS REGISTRY NO. (RN): 325950-58-1
SEQUENCE LENGTH (SQL): 3356
MOLECULE TYPE (CI): mRNA; linear
DIVISION CODE (CI): Rodents
DATE (DATE): 5 Mar 2001
DEFINITION (DEF): Mus musculus MutS homolog 4 (Msh4) mRNA, complete cds.
SOURCE: house mouse.
ORGANISM (ORGN): Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
NUCLEIC ACID COUNT (NA): 1019 a 737 c 763 g 837 t
REFERENCE: 1 (bases 1 to 3356)
AUTHOR (AU): Her,C.; Wu,X.; Bailey,S.M.; Doggett,N.A.
TITLE (TI): Mouse MutS homolog 4 is predominantly expressed in testis and interacts with **MutS homolog 5**
JOURNAL (SO): Mamm. Genome, 12 (1), 73-76 (2001)
OTHER SOURCE (OS): CA 135:368128
REFERENCE: 2 (bases 1 to 3356)
AUTHOR (AU): Her,C.
TITLE (TI): Direct Submission
JOURNAL (SO): Submitted (23-AUG-2000) Bioscience Division, Los Alamos National Laboratory, Los Alamos, NM 87544, USA

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..3356	/organism="Mus musculus" /strain="BALB/c" /db-xref="taxon:10090" /chromosome="3" /tissue-type="testes"
gene	1..3356	/gene="Msh4"
CDS	155..3031	/gene="Msh4" /codon-start=1 /product="MutS homolog 4" /protein-id="AAK15620.1" /db-xref="GI:13195241" /translation="MCCLFLRLRDYSTAHALSLP PCQRCGLQPWSARSHARRTLGVRK AGEMLRQEAASLSSSPRWTPSRRDAPCGRTLASA SRPSTEGAMADRSSSSSSSPAPAS APGSSFGNKRSYAIHRAASSFPVGTSSSSARDTT YPHTFRTPLSAGNPQRSGHKSWTP QVGYSATSSAVSAHAPSVIVAVVEGRGLARGEIG

MASIDLKSPQIMLSQFADNTTYAK
VITKLQVLSPLEIIMSNTACVVGNSTKLFTLITE
NFKNVNFTTVQRKYFNETKGLEYI
EQLCIAEFSSVLMEVQSRYYCLAAAAAALLKYVEF
IQNSVYAPKSLKIYFQGSEQTAMI
DSSSAQNLELLVNNQDYRSNHTLFGVLNYTKTAG
GSRRLRSNILEPLVDVETISMRLD
CVQELLQDEELFFGLQSVISRFLDTEQLLSVLVQ
IPKQDTVNAAESKITNLIYLKHTL
ELVEPLKVTLKNCSTPLLRAYYGSLEDHRFGLIL
DKIKTVINDDARYMKGCLNMRTQK
CYAVRSNISEFLDIARRTYTEIVDDIAGMIAQLA
EKYSLPLRTSFSSSRGFFIQMTTD
CAALSSDQLPSEFIKISKVKNSYSFTSADLIKMN
ERCQESLREIYHMTYMIVCKLLSE
IYEHIHCLYKLSDTVSMLDMLLSFAHACTLSDYV
RPEFTDTLAIKQGWHPILEKISAE
KPVANNTYITEGSNVLIITGPNMSGKSTYLKQIA
LCQIMAQIGSYVPAEYASFRIAAQ
IFTRISTDDDIETNSSTFMKEMKEIAYILHNAND
KSLILIDELGRGTNTEEGIGISYA
VCEHLLSIKAFTLFTTHFLELCHLDALYLNVENM
HFEVQHVKNTSRNKDAILYTYKLS
RGLTEEKNYGLKAAEASSLPSSIVLDARDITTQI
TRQILQNQRSSPEMDRQRAVYHLA
TRLVQAARNSQLEPDRLRTYLSNLKKKYAGDFPR
AVGLPEKTEE"

SEQUENCE (SEQ):

```
     1 gttagtgggc tataaattgt tgagcctggt acctaaggag tgaagaggct tacagcttcc
    61 agaatcacgt gatgagaata aaccggcaca accctggacg caaaggtgag aaactcgctg
   121 ctcacccctg aactgcgcct gcgctgtgtg catcatgtgc tgcttgttcc tgcgcctgcg
   181 cgattacagc actgcgcatg cgcttagcct cccgccttgt cagcggtgcg gcctccagcc
   241 ttggagtgct cgaagccacg cgcgcagaac cttgggagtc agaaaggccg gagagatgct
   301 gaggcaggag gctgcatcgc tttccagttc cccacgctgg acgccgtcgc ggagggatgc
   361 cccatgcggg aggaccctgg cctccgcgtc caggccgagt acggaaggcg ccatggccga
   421 caggagcagc agcagcagca gcagtccggc gccggcgtcc gcgccaggtt catcatttgg
   481 aaacaaaaga tcttatgcta tacacagagc tgcatccagt tttcctgttg gtacaagctc
   541 atcttctgca cgagatacca cttacccaca tacatttaga actccgttat ctgctggaaa
   601 tccccagaga tcagggcata aaagttggac accacaagta ggatattcag ccacatcctc
   661 tgcggtgtct gcacacgccc catcagtcat tgtagcggtg gtggaaggaa gagggctggc
   721 cagaggcgag ataggaatgg caagcattga tttaaaaagc ccacagatta tgttgtcaca
   781 gtttgcagac aatacaacat atgcaaaggt gatcactaaa ctccaagttt tatcaccttt
   841 ggaaataata atgtcaaata ctgcttgtgt tgtgggaaat tcaaccaagt tatttactct
   901 gatcacagaa aattttaaga acgttaattt cactacagtc caaaggaaat acttcaacga
   961 aacaaagggc ttagagtaca ttgagcagtt gtgcatagct gagttcagtt ctgtgctaat
  1021 ggaggtgcag tccaggtatt actgccttgc agctgctgca gctttattaa agtatgtcga
  1081 attcattcag aattcagtgt atgcacccaa atcgctaaag atttatttcc aaggtagtga
  1141 gcagacagcc atgatagatt catcatcggc ccaaaacctg gagttgttag ttaataacca
  1201 ggactacagg agtaatcaca ctctcttcgg tgttttaaat tacaccaaga ctgcgggagg
  1261 gagccgaagg ctgcgctcca acatcctgga gcctctggtt gatgtggaga cgatcagcat
  1321 gcggctggac tgtgtccagg agctgctgca ggacgaggag ctcttctttg gactccagtc
  1381 agtcatatca agattcctgg atacggagca gctgctttct gttttagttc aaatcccaaa
  1441 gcaagacacg gttaacgcag ctgaatcaaa gataacaaat ttgatctatc tgaagcatac
  1501 attggaactt gtggagcctt taaaggtcac cttaaagaac tgtagcacac ccctattaag
  1561 agcttactat ggctccttgg aagaccatag gtttgggcta atacttgata agattaaaac
  1621 agtgataaat gatgatgcaa ggtacatgaa gggctgcctg aacatgcgga ctcagaagtg
  1681 ctatgcagtg cgctctaaca tcagtgagtt cctggacata gccaggagga catacacaga
  1741 gatagtggac gacatagcag gaatgatagc acagctcgca gagaagtaca gtcttcccct
  1801 acggaccagc ttcagctcct cacgggggtt cttcatccag atgaccacag actgcgctgc
  1861 actctccagt gaccagcttc cttcggagtt tattaagatt tctaaagtga aaaactcata
  1921 tagctttaca tcagcagatt taattaaaat gaatgaaaga tgccaagagt ctttgcgaga
  1981 aatctatcac atgacctaca tgatagtgtg caaactgctc agtgagatct acgagcacat
  2041 ccactgcttg tacaagctct ctgacacggt gtccatgctg gatatgctgc tgtcgtttgc
  2101 gcatgcctgt actctttctg actacgttcg accagagttt actgacactt tagcaatcaa
```

```
  2161 acaaggatgg catcccattc ttgaaaaaat atctgcagag aaacctgtcg ccaacaatac
  2221 ctacattaca gaagggagta atgttctaat cattactgga ccaaatatga gcggaaagtc
  2281 cacgtactta aagcagattg cactttgtca gatcatggcc cagatcggct cctatgtccc
  2341 agcagaatac gcctccttta ggattgctgc acagatcttt acgagaatca gtactgatga
  2401 tgatattgaa acaaactcat caacgtttat gaaagaaatg aaagagatag catatattct
  2461 ccataatgct aatgacaagt cactcatatt aattgacgag cttggcagag gcactaatac
  2521 agaagaaggg attggaattt cttatgctgt ctgtgagcac ctgcttagca taaaggcatt
  2581 tacactcttc actacccatt tcctggaact atgccatcta gatgccctgt atcttaatgt
  2641 agaaaacatg cattttgaag ttcagcatgt gaagaatacc tcaagaaata aagatgcaat
  2701 tttgtatact tacaaacttt ccaggggact cacagaagaa aagaactatg gattaaaagc
  2761 tgcagaggcc tcctcacttc cgtcatcgat tgtcttggat gccagagaca tcacaacaca
  2821 aattacaagg caaattttgc aaaatcaaag gagttcccct gagatggata gacagagagc
  2881 tgtgtaccat cttgccacaa ggcttgtcca ggccgcccga aactctcagt tggagccaga
  2941 caggttacgg acatacctga gtaacctcaa gaagaaatat gcaggggact ttcccagggc
  3001 tgtgggcctt ccagagaaga ctgaggagtg accagtacac ggtgtgcaca ggggttgcaa
  3061 cttagttgct cagctttatg ttttaattaa aaattatagt atattaacct cagaatggtc
  3121 acctactatg aattctagat ggaaaatatt cattggaata gcttcaaaag ggacaaattt
  3181 ttaaataaaa gtttttgtta gaaaaataat acagtattca ctgtgaagtc agactaagtt
  3241 tgtagtttgc tattaagtgt atgtttagaa ggttaacaga agtattctag cttaaaaata
  3301 tataataaag aataggtctg aaaagctaaa aaaaaaaaaa aaaaaaaaaa aaaaaa
```

L16 ANSWER 12 OF 25 GENBANK.RTM. COPYRIGHT 2002

LOCUS (LOC): AK017308 GenBank (R)
GenBank ACC. NO. (GBN): AK017308
CAS REGISTRY NO. (RN): 322338-39-6
SEQUENCE LENGTH (SQL): 856
MOLECULE TYPE (CI): mRNA; linear
DIVISION CODE (CI): High-Throughput CDNA Sequencing
DATE (DATE): 19 Jan 2002
DEFINITION (DEF): Mus musculus 6 days neonate head cDNA, RIKEN full-length enriched library, clone:5430414C05: **mutS homolog 5** (E. coli), full insert sequence.
SOURCE: Mus musculus (strain:C57BL/6J) 6 days neonate head cDNA to mRNA, clone_lib:RIKEN full-length enriched mouse cDNA library clone:5430414C05.
ORGANISM (ORGN): Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
NUCLEIC ACID COUNT (NA): 232 a 200 c 179 g 245 t
COMMENT:
Please visit our web site (http://genome.gsc.riken.go.jp/) for further details.
cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. First strand cDNA was primed with a primer [5' GAGAGAGAGAAGGATCCAAGAGCTCTTTTTTTTTTTTTTTVN 3'], cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. cDNA went through one round of normalization to Rot = 10.0 and subtraction to Rot = 100.0. Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCC 3']. cDNA was cleaved with BamHI and XhoI. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I. Cloning sites, 5' end: SalI; 3' end: BamHI. Host: DH10B.
REFERENCE: 1 (sites)
AUTHOR (AU): Carninci,P.; Hayashizaki,Y.
TITLE (TI): High-efficiency full-length cDNA cloning
JOURNAL (SO): Meth. Enzymol., 303, 19-44 (1999)
OTHER SOURCE (OS): CA 131:318304

REFERENCE: 2 (sites)
AUTHOR (AU): Carninci,P.; Shibata,Y.; Hayatsu,N.; Sugahara,Y.; Shibata,K.; Itoh,M.; Konno,H.; Okazaki,Y.; Muramatsu,M.; Hayashizaki,Y.
TITLE (TI): Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new genes
JOURNAL (SO): Genome Res., 10 (10), 1617-1630 (2000)
OTHER SOURCE (OS): CA 134:305920

REFERENCE: 3 (sites)
AUTHOR (AU): Shibata,K.; Itoh,M.; Aizawa,K.; Nagaoka,S.; Sasaki,N.; Carninci,P.; Konno,H.; Akiyama,J.; Nishi,K.; Kitsunai,T.; Tashiro,H.; Itoh,M.; Sumi,N.; Ishii,Y.; Nakamura,S.; Hazama,M.; Nishine,T.; Harada,A.; Yamamoto,R.; Matsumoto,H.; Sakaguchi,S.; Ikegami,T.; Kashiwagi,K.; Fujiwake,S.; Inoue,K.; Togawa,Y.; Izawa,M.; Ohara,E.; Watahiki,M.; Yoneda,Y.; Ishikawa,T.; Ozawa,K.; Tanaka,T.; Matsuura,S.; Kawai,J.; Okazaki,Y.; Muramatsu,M.; Inoue,Y.; Kira,A.; Hayashizaki,Y.
TITLE (TI): RIKEN integrated sequence analysis (RISA) system--384-format sequencing pipeline with 384 multicapillary sequencer
JOURNAL (SO): Genome Res., 10 (11), 1757-1771 (2000)
OTHER SOURCE (OS): CA 134:203311

REFERENCE: 4 (sites)
AUTHOR (AU): The RIKEN Genome Exploration Research Group Phase II Team; the FANTOM Consortium.
TITLE (TI): Functional annotation of a full-length mouse cDNA collection
JOURNAL (SO): Nature, 409, 685-690 (2001)
OTHER SOURCE (OS): CA 134:203311

REFERENCE: 5 (bases 1 to 856)
AUTHOR (AU): Adachi,J.; Aizawa,K.; Akahira,S.; Akimura,T.; Aono,H.; Arai,A.; Arakawa,T.; Baldarelli,R.; Bono,H.; Brownstein,M.; Bult,C.; Carninci,P.; Fukuda,S.; Fukunishi,Y.; Furuno,M.; Hanagaki,T.; Hara,A.; Hayatsu,N.; Hill,D.; Hiramoto,K.; Hiraoka,T.; Hori,F.; Hume,D.; Imotani,K.; Ishii,Y.; Itoh,M.; Izawa,M.; Kasukawa,T.; Kato,H.; Kawai,J.; Kojima,Y.; Konno,H.; Kouda,M.; Koya,S.; Kurihara,C.; Matsuyama,T.; Miyazaki,A.; Nishi,K.; Nomura,K.; Numazaki,R.; Ohno,M.; Okazaki,Y.; Okido,T.; Owa,C.; Quackenbush,J.; Saito,H.; Saito,R.; Sakai,C.; Sakai,K.; Sano,H.; Sasaki,D.; Schriml,L.; Shibata,K.; Shibata,Y.; Shinagawa,A.; Shiraki,T.; Sogabe,Y.; Suzuki,H.; Tagami,M.; Tagawa,A.; Takahashi,F.; Tanaka,T.; Tejima,Y.; Toya,T.; Yamamura,T.; Yamanaka,I.; Yasunishi,A.; Yoshida,K.; Yoshino,M.; Muramatsu,M.; Hayashizaki,Y.
TITLE (TI): Direct Submission
JOURNAL (SO): Submitted (10-JUL-2000) Yoshihide Hayashizaki, The Institute of Physical and Chemical Research (RIKEN), Laboratory for Genome Exploration Research Group, RIKEN Gemomic Sciences Center (GSC), RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:genome-res@gsc.riken.go.jp, URL:http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222, Fax:81-45-503-9216)

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..856	/organism="Mus musculus"
		/strain="C57BL/6J"
		/db-xref="MGD:MGI:1903961"

```
                                     /db-xref="taxon:10090"
                                     /clone="5430414C05"
                                     /tissue-type="head"
                                     /clone-lib="RIKEN full-length
                                     enriched mouse cDNA library"
                                     /dev-stage="6 days neonate"
gene            493..810             /gene="Msh5"
CDS             493..810             /gene="Msh5"
                                     /note="data source:MGD, source
                                     key:MGI:1329021, evidence:ISS mutS
                                     homolog 5 (E. coli) putative"
                                     /codon-start=1
                                     /protein-id="BAB30683.1"
                                     /db-xref="GI:12856483"
                                     /translation="MVRFVLIVKLGQENGPMRPF
                                     TPHPPQIGPEISKQRLLSGNYSFI
                                     SDSMTATEKILFLSSIIPFDCVLTVRALGGLLKF
                                     LSRRRIGVELEDYDVGVPILGFKK FVL"

SEQUENCE (SEQ):
     1 ttggaagctg cttcccacac cccatcatga gtctccccga gatctctcct gcacctttac
    61 tatctttagt acaacttact gagaaactat ggggttaggt atgtgaggaa tgggggagtg
   121 gaagaaaatg gagagatgat actcttaaaa acagttttga acgttggagc caaagtcctt
   181 tgttgcatta aaaaggaaac ggcactgttt ctgggaacca tggtccataa ggcactccct
   241 actttgcaaa cttccaggtt tgcaaaaagg acaggaaata caggaaatgg gcagtattag
   301 tattagttcc atatatatcc acaatccctg ccatcttgac cttttgcctc ctgagtcact
   361 tgtctctctc aggttgtgct tatagccaga catctacatt acataaagaa ccgaaagaat
   421 gagactacat ctgtatgttt tgattctttc tttagctttc cttaaccacc tctatggcct
   481 tggacaagcc atatggtcag atttgttctt attgttaaac tggggcaaga gaatggacct
   541 atgagacctt tcactcccca tcctccccaa ataggtccag agataagcaa acagcgtctc
   601 ctttccggaa actactcctt catctcagac tccatgactg ctactgagaa aatccttttc
   661 ctctcctcca ttattccctt tgactgtgtc ctcacggtcc gggcacttgg aggactgctc
   721 aagttcctga gtcgaagaag aattggggtt gaactggaag actatgatgt tggcgtccct
   781 atcctgggat tcaagaagtt tgtattgtag gtgactcatc caaacctcaa ccaaagtaaa
   841 gaggactggg aggtct

L16  ANSWER 13 OF 25      GENBANK.RTM.  COPYRIGHT 2002

LOCUS (LOC):              AF146227     GenBank (R)
GenBank ACC. NO. (GBN):   AF146227
CAS REGISTRY NO. (RN):    248227-79-4
SEQUENCE LENGTH (SQL):    2907
MOLECULE TYPE (CI):       mRNA; linear
DIVISION CODE (CI):       Rodents
DATE (DATE):              14 Nov 1999
DEFINITION (DEF):         Mus musculus MutS homolog 5
                          (Msh5) mRNA, complete cds.
SOURCE:                   house mouse.
 ORGANISM (ORGN):         Mus musculus
                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
                          Euteleostomi; Mammalia; Eutheria; Rodentia;
                          Sciurognathi; Muridae; Murinae; Mus
NUCLEIC ACID COUNT (NA):  649 a   829 c   766 g   663 t
REFERENCE:                1  (bases 1 to 2907)
   AUTHOR (AU):           Her,C.; Wu,X.; Wan,W.; Doggett,N.A.
   TITLE (TI):            Identification and characterization of the mouse
                          MutS homolog 5: Msh5
   JOURNAL (SO):          Mamm. Genome, 10 (11), 1054-1061 (1999)
   OTHER SOURCE (OS):     CA 132:261227
REFERENCE:                2  (bases 1 to 2907)
   AUTHOR (AU):           Her,C.; Doggett,N.A.
   TITLE (TI):            Direct Submission
   JOURNAL (SO):          Submitted (27-APR-1999) LS-3, Genomics, Los Alamos
                          National Laboratory, Los Alamos, NM 87545, USA
```

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..2907	/organism="Mus musculus" /strain="BALB/c" /db-xref="taxon:10090" /chromosome="17" /map="18.955 cM" /tissue-type="testis"
gene	1..2907	/gene="Msh5"
CDS	249..2750	/gene="Msh5" /codon-start=1 /product="MutS homolog 5" /protein-id="AAF07881.1" /db-xref="GI:6409195" /translation="MAFRATPGRTPPGPGPRSGI PSASFPSPQPPMAGPGGIEEEDEE EPAEIHLCVLWSSGYLGIAYYDTSDSTIHFMPDA PDHESLKLLQRVLDEINPQSVVTS AKQDEAMTRFLGKLASEEHREPKGPEIILLPSVD FGPEISKQRLLSGNYSFISDSMTA TEKILFLSSIIPFDCVLTVRALGGLLKFLSRRRI GVELEDYDVGVPILGFKKFVLTHL VSIDQDTYSVLQIFKSESHPSVYKVASGLKEGLS LFGILNRCRCKWGQKLLRLWFTRP TRELRELNSRLDVIQFFLMPQNLDMAQMLHRLLS HIKNVPLILKRMKLSHTKVSDWQV LYKTVYSALGLRDACRSLPQSIQLFQDIAQEFSD DLHHIASLIGKVVDFEESLAENRF TVLPNIDPDIDAKKRRLIGLPSFLTEVAQKELEN LDSRIPSCSVIYIPLIGFLLSIPR LPFMVEASDFEIEGLDFMFLSEDKLHYRSARTKE LDTLLGDLHCEIRDQETLLMYQLQ CQVLARASVLTRVLDLASRLDVLLALASAARDYG YSRPHYSPCIHGVRIRNGRHPLME LCARTFVPNSTDCGGDQGRVKVITGPNSSGKSIY LKQVGLITFMALVGSFVPAEEAEI GVIDAIFTRIHSCESISLGLSTFMIDLNQVAKAV NNATEHSLVLIDEFGKGTNSVDGL ALLAAVLRHWLALGPSCPHVFVATNFLSLVQLQL LPQGPLVQYLTMETCEDGEDLVFF YQLCQGVASASHASHTAAQAGLPDPLIARGKEVS DLIRSGKPIKATNELLRRNQMENC QALVDKFLKLDLEDPTLDLDIFISQEVLPAAPTI L"

SEQUENCE (SEQ):

```
     1 caggagagcg cgctgcggct gtaagggcgt gggtggcggg agagacttga cgtgacagcg
    61 cgctccgtca gagcttccaa agcacggctt cgagtgacag gaatgagggt gggacagtag
   121 ctcggagctg ctcccaacct aaaggggcag cccccgcgcc tgtcccctga aagcccgcgc
   181 accagccgcc tgctgaatgc tgcttttgga cctccttccc ctcccatgtc ctcagagtcg
   241 ccgagcccat ggctttcaga gcgaccccag gccggacgcc gccgggaccc ggacccagat
   301 ccggaatccc ctcagccagc ttccccagcc ctcagccccc aatggcgggg cctggaggta
   361 tcgaggaaga ggacgaggag gagcccgccg agatccatct gtgcgtgctg tggagctcgg
   421 gatacctggg cattgcttac tatgacacta gtgactccac tatccacttc atgccagatg
   481 ccccagacca cgagagccta aagcttctcc agagagttct ggatgaaatc aacccccagt
   541 ctgttgtcac aagtgccaaa caggatgagg ctatgactcg atttctaggg aagcttgcct
   601 ctgaggagca cagagagcca aagggacctg aaatcatact tctgccaagc gtggattttg
   661 gtccagagat aagcaaacag cgtctccttt ccggaaacta ctccttcatc tcagactcca
   721 tgactgctac tgagaaaatc cttttcctct cctccattat tccctttgac tgtgtcctca
   781 cggtccgggc acttggagga ctgctcaagt tcctgagtcg aagaagaatt ggggttgaac
   841 tggaagacta tgatgttggc gtccctatcc tgggattcaa gaagtttgta ttgacccatc
   901 tggtgagcat agatcaagac acttacagcg ttctacagat tttcaagagt gagtctcacc
   961 cctcggtgta caaagtagcc agtgggctga aggaggggct cagccttttt ggaatcctca
  1021 acagatgccg ctgtaagtgg ggacagaagc tgctcaggct gtggtttaca cgtccaaccc
```

```
  1081 gggagctaag ggaactcaat tcccgactgg atgtcattca gttcttcctg atgcctcaga
  1141 acctggacat ggcccagatg ctgcaccgac tcctgagcca catcaagaat gtgcctctga
  1201 ttctgaaacg catgaagttg tcccacacca aggtcagtga ctggcaggtc ctctacaaga
  1261 ctgtgtacag tgctctcggc ctgagggatg cctgccgttc tctgccacag tccatccagc
  1321 tttttcagga cattgcccag gagttctctg acgacctgca tcacattgcc agcctcatcg
  1381 ggaaggtggt ggactttgag gaaagtcttg ctgaaaatcg cttcacagtc ctccctaaca
  1441 tagaccctga catagatgcc aagaagcgaa ggctgatagg gcttccgagc ttcctcactg
  1501 aagttgctca gaaggagctg gagaacctgg actctcgcat cccctcatgc agtgtcatct
  1561 acatccctct gattggcttc cttctttcca ttccccgctt gcctttcatg gtggaagcta
  1621 gtgactttga gattgagggg ctggacttca tgtttctctc agaggacaag ctgcactatc
  1681 gtagcgcccg gaccaaggag ctggacacgc tgctgggaga cctgcactgt gagatccggg
  1741 accaggagac tctgttgatg taccagctgc agtgccaggt gctggcacgg gcttcggtct
  1801 tgactcgggt attggacctt gcctcccgcc tggacgtcct gttggctctt gccagtgctg
  1861 cccgggacta cggctattcg agaccgcatt actctccctg tatccatgga gtacgaatca
  1921 ggaatggcag gcatcctctg atggaactgt gtgcacgaac cttcgtgccc aactccacgg
  1981 actgtggtgg ggaccagggc agggtcaaag tcatcactgg acccaactcc tcagggaaaa
  2041 gcatatatct caagcaggta ggcttgatca ctttcatggc cctggtgggc agtttcgtgc
  2101 ctgcagagga ggccgagatt ggggtaatcg acgccatctt cactcgaatt cacagctgcg
  2161 aatccatctc cctcggcctc tccaccttca tgattgatct caaccaggtg gcgaaagcag
  2221 tgaacaatgc cacagagcac tcgctggtcc tgatcgatga attcgggaag gggaccaact
  2281 cggtggatgg cctggcactt ctggctgctg tgctccgtca ctggctagca ctgggaccca
  2341 gctgccccca cgtctttgta gccaccaact tcctgagcct tgttcagctg cagctgctgc
  2401 cgcaaggacc cctggtgcag tatttgacca tggagacttg tgaggatggg gaagaccttg
  2461 tcttcttcta ccagctttgc caaggcgtcg ccagtgccag ccacgcctcc cacacagcgg
  2521 cccaggctgg gcttcctgac ccactcattg ctcgtggcaa agaggtctca gacttgatcc
  2581 gcagtgggaa acccatcaag gccacgaatg agcttctaag gagaaaccaa atggaaaact
  2641 gccaggcact ggtggataag tttctaaaac tggacttgga ggatcccacc ctggacctgg
  2701 acattttcat tagtcaggaa gtgctgcccg ctgctcccac catcctctga gagtcctccc
  2761 tcgcctccca gctacctgag ccccggggcc taccatgcct tttcgggttt ttttttccc
  2821 ttactgcaaa gttttaagtt tgcacattgg gttttgggct aggaataaag cttattttag
  2881 atcaaaaaaa aaaaaaaaaa aaaaaaa
```

L16 ANSWER 14 OF 25 GENBANK.RTM. COPYRIGHT 2002

LOCUS (LOC): HSMSH4 GenBank (R)
GenBank ACC. NO. (GBN): AF048991
CAS REGISTRY NO. (RN): 207662-28-0
SEQUENCE LENGTH (SQL): 6195
MOLECULE TYPE (CI): DNA; linear
DIVISION CODE (CI): Primates
DATE (DATE): 6 Oct 1998
DEFINITION (DEF): Homo sapiens **MutS homolog 5** (MSH5) gene, exons 13 through 25 and complete cds.
SEGMENT: 4 of 4
SOURCE: human.
ORGANISM (ORGN): Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
NUCLEIC ACID COUNT (NA): 1441 a 1600 c 1669 g 1485 t
REFERENCE: 1 (bases 1 to 6195)
AUTHOR (AU): Her,C.; Doggett,N.A.
TITLE (TI): Cloning, structural characterization, and chromosomal localization of the human orthologue of Saccharomyces cerevisiae MSH5 gene
JOURNAL (SO): Genomics, 52 (1), 50-61 (1998)
OTHER SOURCE (OS): CA 130:1059
REFERENCE: 2 (bases 1 to 6195)
AUTHOR (AU): Her,C.; Doggett,N.
TITLE (TI): Direct Submission
JOURNAL (SO): Submitted (18-FEB-1998) Life Sciences Divison and Center for Human Genome Studies, Mail Stop: M888, Los Alamos National Laboratory, Los Alamos, NM 87545, USA

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..6195	/organism="Homo sapiens" /db-xref="taxon:9606" /chromosome="6" /map="6p21.3"
mRNA	join(AF048988.1:702..800, AF048988.1:1192..1351, AF048988.1:1901..2024, AF048988.1:3604..3684, AF048988.1:3835..3897, AF048988.1:4631..4752, AF048988.1:4917..5026, AF048988.1:5273..5308, AF048988.1:5964..6046, AF048989.1:501..546, AF048990.1:1127..1265, AF048990.1:1393..1455, 387..515,770..842, 988..1097,1319..1399, 1647..1734,2008..2197, 2312..2438,2912..3061, 3410..3484,3694..3837, 4040..4177,4334..4407, 4642..4898)	/gene="MSH5" /note="utilizes alternative exon 1" /product="MutS homolog 5"
gene	order(AF048988.1:702..6820,AF048989.1:1..880, AF048990.1:1..1960, 1..4898)	/gene="MSH5"
mRNA	join(AF048988.1:766..958, AF048988.1:1192..1351, AF048988.1:1901..2024, AF048988.1:3604..3684, AF048988.1:3835..3897, AF048988.1:4631..4752, AF048988.1:4917..5026, AF048988.1:5273..5308, AF048988.1:5964..6046, AF048989.1:501..546, AF048990.1:1127..1265, AF048990.1:1393..1455, 387..515,770..842, 988..1097,1319..1399, 1647..1734,2008..2197, 2312..2438,2912..3061, 3410..3484,3694..3837, 4040..4177,4334..4407, 4642..4898)	/gene="MSH5" /product="MutS homolog 5"
CDS	join(AF048988.1:1205..1351, AF048988.1:1901..2024, AF048988.1:3604..3684, AF048988.1:3835..3897, AF048988.1:4631..4752, AF048988.1:4917..5026, AF048988.1:5273..5308, AF048988.1:5964..6046, AF048989.1:501..546, AF048990.1:1127..1265,	/gene="MSH5"

```
                AF048990.1:1393..1455,
                387..515,770..842,
                988..1097,1319..1399,
                1647..1734,2008..2197,
                2312..2438,2912..3061,
                3410..3484,3694..3837,
                4040..4177,4334..4407,
                4642..4753)
                                        /codon-start=1
                                        /product="MutS homolog 5"
                                        /protein-id="AAC62534.1"
                                        /db-xref="GI:3108227"
                                        /translation="MASLGANPRRTPQGPRPGAA
                                        SSGFPSPAPVPGPREAEEEEVEEE
                                        EELAEIHLCVLWNSGYLGIAYYDTSDSTIHFMPD
                                        APDHESLKLLQRVLDEINPQSVVT
                                        SAKQDENMTRFLGKLASQEHREPKRPEIIFLPSV
                                        DFGLEISKQRLLSGNYSFIPDAMT
                                        ATEKILFLSSIIPFDCLLTVRALGGLLKFLGRRR
                                        IGVELEDYNVSVPILGFKKFMLTH
                                        LVNIDQDTYSVLQIFKSESHPSVYKVASGLKEGL
                                        SLFGILNRCHCKWGEKLLRLWFTR
                                        PTHDLGELSSRLDVIQFFLLPQNLDMAQMLHRLL
                                        GHIKNVPLILKRMKLSHTKVSDWQ
                                        VLYKTVYSALGLRDACRSLPQSIQLFRDIAQEFS
                                        DDLHHIASLIGKVVDFEGSLAENR
                                        FTVLPNIDPEIDEKKRRLMGLPSFLTEVARKELE
                                        NLDSRIPSCSVIYIPLIGFLLSIP
                                        RLPSMVEASDFEINGLDFMFLSEEKLHYRSARTK
                                        ELDALLGDLHCEIRDQETLLMYQL
                                        QCQVLARAAVLTRVLDLASRLDVLLALASAARDY
                                        GYSRPRYSPQVLGVRIQNGRHPLM
                                        ELCARTFVPNSTECGGDKGRVKVITGPNSSGKSI
                                        YLKQVGLITFMALVGSFVPAEEAE
                                        IGAVDAIFTRIHSCESISLGLSTFMIDLNQVAKA
                                        VNNATAQSLVLIDEFGKGTNTVDG
                                        LALLAAVLRHWLARGPTCPHIFVATNFLSLVQLQ
                                        LLPQGPLVQYLTMETCEDGNDLVF
                                        FYQVCEGVAKASHASHTAAQAGLPDKLVARGKEV
                                        SDLIRSGKPIKPVKDLLKKNQMEN
                                        CQTLVDKFMKLDLEDPNLDLNVFMSQEVLPAATS
                                        IL"
exon            387..515                /gene="MSH5"
                                        /number=13
exon            770..842                /gene="MSH5"
                                        /number=14
exon            988..1097               /gene="MSH5"
                                        /number=15
exon            1319..1399              /gene="MSH5"
                                        /number=16
exon            1647..1734              /gene="MSH5"
                                        /number=17
exon            2008..2197              /gene="MSH5"
                                        /number=18
exon            2312..2438              /gene="MSH5"
                                        /number=19
exon            2912..3061              /gene="MSH5"
                                        /number=20
exon            3410..3484              /gene="MSH5"
                                        /number=21
exon            3694..3837              /gene="MSH5"
                                        /number=22
exon            4040..4177              /gene="MSH5"
                                        /number=23
exon            4334..4407              /gene="MSH5"
```

/number=24

exon 4642..4898 /gene="MSH5"
/number=25

SEQUENCE (SEQ):

```
     1 cctgcctcag cctcccaagt agctggaatt acatgtgcat gccaccaagc ccagttaatt
    61 tttgtatttt gagtagagac agggtttcac catgttggtg aggctgatct cgaactcctg
   121 acctcaggtg atctacccac ctcagcctcc caaagtgctg ggattacagg catgagccac
   181 tgtgcctggc caggaccata tcttaattgt ctttgtagtt tcagtgtttg gtacagtgcc
   241 tctcactgtt tctttttgcc tttgagatct tccctctttg ttactgtgat cttccctact
   301 ggtctttgtt cttctgagtc tgtccctatc accacctcaa cccgagctgg atgtggcctg
   361 tcctcctttt tgtgtttctc tcacagactg tgtacagtgc cctgggcctg agggatgcct
   421 gccgctccct gccgcagtcc atccagctct ttcgggacat tgcccaagag ttctctgatg
   481 acctgcacca tatcgccagc ctcattggga aagtagtgag tagaaggaaa aagggagtgc
   541 acccagggag gtcagggaga gagaatgcag tgtgcaagat ggggaaacat ggaagatatt
   601 gaggtcaatt ggataaagaa tgggatggtg ggaggaggca gcagaacttc agggaagtat
   661 ctggagggtg agagttaaag gaggactgca gggagaattg gggcccaagg agagctgagg
   721 aacaggacag agggtgccag gtcctaagaa acagtactta tctcctcagg tggactttga
   781 gggcagcctt gctgaaaatc gcttcacagt cctccccaac atagatcctg aaattgatga
   841 gagtgagtgt tgggtgtgga tgggcctgtg agccctgcgc agtgatggag taccatcctt
   901 ggcaggtggt caccacagct ggggatcttc atagcaacca gggcaggaga ctcacttttg
   961 ataaccacgt gtcttccacc ctcgtagaaa agcgaagact gatgggactt cccagtttcc
  1021 ttactgaggt tgcccgcaag gagctggaga atctggactc ccgtattcct tcatgcagtg
  1081 tcatctacat ccctctggtg agggcaggag agtgggtgta gccttcagat gtcttttggg
  1141 ggagatatta ggcttatgaa agacatactg gtagataaga aaacttgtgg ggcagcctga
  1201 agaacatgaa cacttttttg tggggataca gggatctttt aagctccctc tagggtgggg
  1261 aggtgtccag taagtctcca agcaggagag tagagtatct cctctttact ctccccagat
  1321 tggcttcctt ctttctattc cccgcctgcc ttccatggta gaggccagtg actttgagat
  1381 taatggactg gacttcatgg taagaccctc aacctctgta aggtgagtga tgaggaaaat
  1441 gagtcagcag ctgaggaaga gcgttactct acagcagcac tgcccaatat gggatctctc
  1501 ctctgtagtt ttactctgag ctttaccagc actgagacaa aggaaagaga agtcagagtt
  1561 aggggctgga ggtggggtta gaaagatggg gaaggagagg aggaccaaga gatgcaaagt
  1621 ccacagcttt gaacccctgt acccagtttc tctcagagga gaagctgcac tatcgtagtg
  1681 cccgaaccaa ggagctggat gcattgctgg gggacctgca ctgcgagatc cggggtgagg
  1741 aaaagccaga ggttatatgc attgtaagat gtttaaaaaa agcagcagcc aggggaagga
  1801 ggggagtggg caacttgggg atgcttccaa caggcccctc ctcttcctgc tctctgtctc
  1861 gctcactctg actctatctt ttcctctgaa tgtcttgagg tctcagattg tatctgcaac
  1921 ctgtttccag atccccctag gggcctctgc ctctccttca ctttcccctg gaactgacct
  1981 ccagctccct tcctcaccca ctcccagacc aggagacgct gctgatgtac cagctacagt
  2041 gccaggtgct ggcacgagca gctgtcttaa cccgagtatt ggaccttgcc tcccgcctgg
  2101 acgtcctgct ggctcttgcc agtgctgccc gggactatgg ctactcaagg ccgcgttact
  2161 ccccacaagt ccttggggta cgaatccaga atggcaggta agaatagagg cgggtggagg
  2221 aatagacatg aggggcccaa aggctacatc ttctgggggt tcatctatct tgatccacaa
  2281 gccatgcgag gtgcctctcc gcccactgca gacatcctct gatggaactc tgtgcccgaa
  2341 cctttgtgcc caactccaca gaatgtggtg gggacaaagg gagggtcaaa gtcatcactg
  2401 gacccaactc atcagggaag agcatatacc tcaaacaggt gaggagaagc cctgcagcct
  2461 gggcctctgg cgtctcctgc atctactcca cccctacttg ccagccaact caggctcctg
  2521 cagctcttct cccattttct gaccccgctc ttcatgaaag gaccatcacc cacatccctg
  2581 tgcttccacc tcacatgttc ttattctcca ctggagagcc atgctctaat ggaactttcc
  2641 gtggcccaaa ttccttcacc tgcctctgag taggtacaca ccactcccaa gtatgtctct
  2701 gcccacgtcc cgtgcctctt cactgattct aaattagccc acagggctat ggtcaggatt
  2761 cggggaggag agacagagtc agtgtgtctg ttacctattt ctcctgtttc accctgtcca
  2821 tttctctttg atgtgccatt catgccttga gcctcacttt cacctcagcc cacggcacca
  2881 ggccccaggc cctgtctcct tccctattca ggtaggcttg atcacattca tggccctggt
  2941 aggcagcttt gtgccagcag aggaggccga aattggggca gtagacgcca tcttcacacg
  3001 aattcatagc tgcgaatcca tctcccttgg cctctccacc ttcatgatcg acctcaacca
  3061 ggtcaaaggg aacaaaggga ggtgggattg aggaagggga taatgggaaa ggaacccctg
  3121 aaaatgctca taacaggaaa gcatgccctc tgctgcatgc cctttatact aaaagtgggg
  3181 agcactaagg tcagagataa gaagaatcaa taccataaac atttcttgaa cccttgtttc
  3241 atgtgagtca ctgttggcaa agaggatgaa caaagcgtgc acctcaccat tcaagaactt
  3301 gcagtgcagt agggagggca tgtatacagc tttattcaca ggccaactgt ggtcagtgcg
  3361 ttacgggctt ccaatactaa ctttcccttg tccaccttat acccagcagg tggcgaaagc
  3421 agtgaacaat gccactgcac agtcgctggt ccttattgat gaatttggaa agggaaccaa
  3481 cacggtgagg ggagaaactg atgaggggag aaactaagga ggggaaaatg gaggaggatg
  3541 aaggagcatg acagtgaggc tgggcctctg gaatggaata gggctgtgtg ggcagaaaag
```

```
  3601 aaatagaaca cgagacaggg aaaggcagtg caagtgcaga ggggcatatg gggtccccat
  3661 ggctccgaat gctaacctct gccctctttg caggtggatg ggctcgcgct tctggccgct
  3721 gtgctccgac actggctggc acgtggaccc acatgccccc acatctttgt ggccaccaac
  3781 tttctgagcc ttgttcagct acaactgctg ccacaagggc ccctggtgca gtatttggtg
  3841 aggagaccaa tctagctcct cggggacccc caggctgggc atttcccaga ggtggggatt
  3901 ggctcctcta tcagaacaag ggctccctca gcacagagac cacatccctt ccctttctc
  3961 cctccccaca ggattggcca agggtttcag gacaggaagg aggtgattga tgatacactg
  4021 tcttttattc tcttttaaga ccatggagac ctgtgaggat ggcaacgatc ttgtcttctt
  4081 ctatcaggtt tgcgaaggtg ttgcgaaggc cagccatgcc tcccacacag ctgcccaggc
  4141 tgggcttcct gacaagcttg tggctcgtgg caaggaggtg atgagatcca aatgtgcaac
  4201 cacctccaca tcagagctcc ctttcattcc tagtcctact gggcctgggt ctaggtccac
  4261 aggatttctg acccttattt ccccttctct tccccactcc ccttactcct cccaccttct
  4321 tgcttgttcc taggtctcag acttgatccg cagtggaaaa cccatcaagc ctgtcaagga
  4381 tttgctaaag aagaaccaaa tggaaaagtg cgtatatggc cccagtgtct ttaccctctc
  4441 tgcatcttct cctgcaactc ttctcccctt ttcagggact cagccttcct ccagcacttt
  4501 gcccttcaga aacccaccat ttctttctga aatccctaaa tcttcaagat cccaggtttt
  4561 ctgtgccaca gcctctcccc tctgcccagg gatttggttg tccattctgc cataaatctt
  4621 gcgattttct ctcttcttca gttgccagac attagtggat aagtttatga aactggattt
  4681 ggaagatcct aacctggact tgaacgtttt catgagccag gaagtgctgc ctgctgccac
  4741 cagcatcctc tgagagtcct tccagtgtcc tccccagcct cctgagactc cggtgggctg
  4801 ccatgccctc tttgtttcct tatctccctc agacgcagag tttttagttt ctctagaaat
  4861 tttgtttcat attaggaata aagtttattt tgaagaaaga tattgtttct ttagtctcaa
  4921 aacaagagac taggaaagat ccaaaacaca gagcaggagt ccacagggga acctgccctg
  4981 cctcagtaaa aatacagtgt tgttgctgta ggaagactcc cggattctac cccaggatac
  5041 ttcatgagaa cgaacccctt cagagaggcc ctacaaaaca gattagaggg aagacagagg
  5101 ggtccaaggg agatggtctc tcttctcaag taggaacacc ccagcctcag acagacacag
  5161 caggaagggg cctgagaggc tgacagaggc aggatgggtg caaggcaggg gtggagggga
  5221 gggaccagcc cgggctgcac cagtgggagt ggctccaccc ttcccacctc agagccatgg
  5281 ggagccaggg ctctggcggg gtgcccttgg tgcaggctcc ctacacagtc ctgctgctgc
  5341 cgctggggac aagccgccaa gacccagggg cccagagctt cttcctttgg gtgagtatca
  5401 gcccaacaag aggtcccagg ggaactctct caatagatct gccctttata tttccattca
  5461 acttgagggc ccacagtgtt cccgcctgcc tccccttgcc ctccaggtcc tcagtggcca
  5521 gtctgggttc acactcagtg accacacagt gaacccaact aggggtggag agaaagggcc
  5581 ataacccaga gccctactgt ggcgtgagag tcagcctctg tgattgcctt tcccagctac
  5641 gcaggatgca ggctctggag agagaacagg atgccctgtg gcagggtctg gagctgctac
  5701 agcatggcca ggcctggttt gaagaccatc tgagggaggc acagcgacag cagctgcatc
  5761 taggggccct tggtgaggta tgggggctgc ccctctgtgt gaatgggggg aggaccaggg
  5821 agggaggaac agggaatgtg tagacacagc ctgagaccac tctggagagg ggagagttaa
  5881 tggtcaggga tcatgagttg gaggcagcat cgtaatgaca ggatgccacc aagtgttaag
  5941 ttggtgttca ttgttggggc tggaggaagc tggtctgcat tccattcaga gggatttgga
  6001 tcactccatg gagatgaggg tgtggcctgg attattccaa tggggcaggg atggacaggg
  6061 aggctccatg aagagtagtg aaaggggtga ttgtgctatt tgagggagat ggaggaactg
  6121 atgtgctaaa gagatggagg tggagagtac tggattttcc cacctgcctg ggagggtact
  6181 gggacgaggg gatcc
```

L16 ANSWER 15 OF 25 GENBANK.RTM. COPYRIGHT 2002

LOCUS (LOC): HSMSH3 GenBank (R)
GenBank ACC. NO. (GBN): AF048990
CAS REGISTRY NO. (RN): 207662-27-9
SEQUENCE LENGTH (SQL): 1960
MOLECULE TYPE (CI): DNA; linear
DIVISION CODE (CI): Primates
DATE (DATE): 6 Oct 1998
DEFINITION (DEF): Homo sapiens **MutS homolog 5** (MSH5) gene, exons 11 and 12.
SEGMENT: 3 of 4
SOURCE: human.
ORGANISM (ORGN): Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
NUCLEIC ACID COUNT (NA): 537 a 487 c 450 g 486 t
REFERENCE: 1 (bases 1 to 1960)
AUTHOR (AU): Her,C.; Doggett,N.A.

TITLE (TI): Cloning, structural characterization, and chromosomal localization of the human orthologue of Saccharomyces cerevisiae MSH5 gene
JOURNAL (SO): Genomics, 52 (1), 50-61 (1998)
OTHER SOURCE (OS): CA 130:1059
REFERENCE: 2 (bases 1 to 1960)
AUTHOR (AU): Her,C.; Doggett,N.
TITLE (TI): Direct Submission
JOURNAL (SO): Submitted (18-FEB-1998) Life Sciences Divison and Center for Human Genome Studies, Mail Stop: M888, Los Alamos National Laboratory, Los Alamos, NM 87545, USA

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..1960	/organism="Homo sapiens"
		/db-xref="taxon:9606"
		/chromosome="6"
		/map="6p21.3"
exon	1127..1265	/gene="MSH5"
		/number=11
exon	1393..1455	/gene="MSH5"
		/number=12

SEQUENCE (SEQ):

```
     1 catgcctgta atcccagcac tttgggaggc cgaggcgggt ggatcacaag gtcaggagtt
    61 caagaccagc ctggccaaga tggtgaaacc ccgtctctac taaaaataca aaaattagct
   121 gagcacagtg gcgggtgcct gtaattccag aacctgggag gtggaggttg cagtaagcca
   181 agattgtgct actgcactct agcctgggcg acagagcaag actctatata aaaaataaaa
   241 taaaaaaaaa gaataagaca ctattggccg ggtatggtga ctcacgcctg taatcccagc
   301 actttgggag ccgaggcggg cagatcacga ggtcaagaga tcgagatcat tctggccaac
   361 atagtgaaac cctgactcta ctaaaaatac aacaattagc tgggcatggt ggcgcatacc
   421 tgcagtccca gctactcggg aggctgaggc acgaaaatca cttgaacccg ggaggtggag
   481 gttgcagtga gccgagatcg catcactgca ctccagcctg gcgacaaagc gagactctgt
   541 ctcaaaaaaa aaaaaaaacg aaagaataag acattgttgt tgaagcccct taaatgtccc
   601 tccccaatcc ttttttctct gcagtgttga ccattattat gaattaaagc ttatcatccc
   661 taatgggaca gttatgtttt cacaggaaga atatgaaaag atgaatgtct gttgctgtta
   721 cccagagaca ctttcacagc taaaagacat acaaactcat actgactcac cgtctcttac
   781 tcagcctcag agtgagctgc agtgttggca cacaaatacc tcaacacact gctctccttc
   841 taaaatattg acaagctccg ttacttatat acatggaatg acacacggtc ttatccgttg
   901 aaactgtgat atgtagacac aattatgctc acatctagca attttcagta gatacatgta
   961 aacacacctg aatgggtagg acactgcact tgccactaca ttcccatagc acatcgtgga
  1021 tacatattgc cacaatcccc agggactgca agcacacttt ttggcaaact gagatcaaga
  1081 tgatagatgt aacttgtagt acccccaccc aaaccctcac ttccaggcta tggttcacac
  1141 gtccgactca tgacctgggg gagctcagtt ctcgtctgga cgtcattcag ttttttctgc
  1201 tgccccagaa tctggacatg gctcagatgc tgcatcggct cctgggtcac atcaagaacg
  1261 tgcctgtgag cccagggtgg agggcaggga ggtggggaag gaggttgagg gctgatactg
  1321 ggcagtgggc ttcttgaggg gcattagagt gagggaagag aaaacagcgg ctgtaacctt
  1381 gtctgactgt agctgattct gaaacgcatg aagttgtccc acaccaaggt cagcgactgg
  1441 caggttctct acaaggtaag gccttccttc ttgaatccca aaagtccagg taaaggccct
  1501 cagcctgtat tccagactgt ctgtacccta gacatgctgt ccaattttat tctaccctct
  1561 ttttttttt tttggagaca gcctcgctct gtcgcccagg ctgaagtgcc atggggcgat
  1621 cttggctcac tgcaacctcc gcctcctggg ttcaagcaat tctgcctcag cctcccgaga
  1681 agttgggatt acaagcgccc gccaccatgc ctggcaaatt tttgtatttt tagtagagac
  1741 aggatttcac catgttggcc aggctggtct tgaactcctg acttcaggtg atccacctgc
  1801 ctcagcctcc caaggtgctg ggattacagg tgtgaaccac caggcccggc ctccctcttt
  1861 tttttttaa ctttgtattc aggaaaatgt aaaaaatatt tagaataata taattaaccc
  1921 ccatgtaccc accatgcagt ttcaacactt taacttacgc
```

L16 ANSWER 16 OF 25 GENBANK.RTM. COPYRIGHT 2002

LOCUS (LOC): HSMSH2 GenBank (R)
GenBank ACC. NO. (GBN): AF048989
CAS REGISTRY NO. (RN): 207662-26-8
SEQUENCE LENGTH (SQL): 880

MOLECULE TYPE (CI): DNA; linear
DIVISION CODE (CI): Primates
DATE (DATE): 6 Oct 1998
DEFINITION (DEF): Homo sapiens **MutS homolog 5** (MSH5) gene, exon 10.
SEGMENT: 2 of 4
SOURCE: human.
ORGANISM (ORGN): Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
NUCLEIC ACID COUNT (NA): 207 a 260 c 178 g 235 t
REFERENCE: 1 (bases 1 to 880)
AUTHOR (AU): Her,C.; Doggett,N.A.
TITLE (TI): Cloning, structural characterization, and chromosomal localization of the human orthologue of Saccharomyces cerevisiae MSH5 gene
JOURNAL (SO): Genomics, 52 (1), 50-61 (1998)
OTHER SOURCE (OS): CA 130:1059
REFERENCE: 2 (bases 1 to 880)
AUTHOR (AU): Her,C.; Doggett,N.
TITLE (TI): Direct Submission
JOURNAL (SO): Submitted (18-FEB-1998) Life Sciences Divison and Center for Human Genome Studies, Mail Stop: M888, Los Alamos National Laboratory, Los Alamos, NM 87545, USA

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..880	/organism="Homo sapiens"
		/db-xref="taxon:9606"
		/chromosome="6"
		/map="6p21.3"
exon	501..546	/gene="MSH5"
		/number=10

SEQUENCE (SEQ):

```
     1 atctccgctc actgcaagtt ctgcctcccg ggttcatgcc attctgcttc agcctcccga
    61 gtagctggga ctacaggtgc ctgccaccat gcccggctaa ttttttgtat ttttagtaga
   121 gactgcgttt caccatgtta gccaggatgg tctcgatctc ctgaccacgt gatccgtctg
   181 cctcggcctc ccagagtgct gggattacag gcgtgagcca ccgtgcctgg ccagttcttg
   241 agttttaact aggtctgctt tgtgtatttt tctggctaag tgtccctgtg agtgtccatc
   301 ccttccccca tctccatgta cggtaatccc agctcatatt tgtggccagg caccagcttt
   361 ggctgccttt gtgccctccc aggccagctt cctcaacaac cagcacctct gacctggatg
   421 cctcagctta gacacataaa cacattccat tccctgtccc tgccttgtaa caagttcact
   481 ccctgcctta tccctcacag gaatcctcaa cagatgccac tgtaagtggg gagagaagct
   541 gctcaggtga gtgggtccca cacatactac acactaatgc atgaattcca tatgcacact
   601 acatactaaa gcctactaat ggcagtatac agattctcac atacaccacc ccacctagta
   661 gtagtaaagc aactgccctt tactgagcac tggctaactg catttcatcc ttataacagc
   721 tttgtgtagt agctgatatg catctcattt tttgttgtca gcgcaggtac acatataccc
   781 attgatgata cacagacttg cacacataca agcagcagga aaaaacacaa aatgtaaggc
   841 cgggcacaag tggctcacac ctgtaatccc agcacttggg
```

L16 ANSWER 17 OF 25 GENBANK.RTM. COPYRIGHT 2002

LOCUS (LOC): HSMSH1 GenBank (R)
GenBank ACC. NO. (GBN): AF048988
CAS REGISTRY NO. (RN): 207662-25-7
SEQUENCE LENGTH (SQL): 6820
MOLECULE TYPE (CI): DNA; linear
DIVISION CODE (CI): Primates
DATE (DATE): 6 Oct 1998
DEFINITION (DEF): Homo sapiens **MutS homolog 5** (MSH5) gene, exons 1 through 9.
SEGMENT: 1 of 4

SOURCE: human.
ORGANISM (ORGN): Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
NUCLEIC ACID COUNT (NA): 1661 a 1692 c 1654 g 1813 t
REFERENCE: 1 (bases 1 to 6820)
AUTHOR (AU): Her,C.; Doggett,N.A.
TITLE (TI): Cloning, structural characterization, and chromosomal localization of the human orthologue of Saccharomyces cerevisiae MSH5 gene
JOURNAL (SO): Genomics, 52 (1), 50-61 (1998)
OTHER SOURCE (OS): CA 130:1059
REFERENCE: 2 (bases 1 to 6820)
AUTHOR (AU): Her,C.; Doggett,N.
TITLE (TI): Direct Submission
JOURNAL (SO): Submitted (18-FEB-1998) Life Sciences Divison and Center for Human Genome Studies, Mail Stop: M888, Los Alamos National Laboratory, Los Alamos, NM 87545, USA

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..6820	/organism="Homo sapiens" /db-xref="taxon:9606" /chromosome="6" /map="6p21.3"
exon	702..800	/gene="MSH5" /note="alternatively spliced exon" /number=1
exon	766..958	/gene="MSH5" /number=1
exon	1192..1351	/gene="MSH5" /number=2
exon	1901..2024	/gene="MSH5" /number=3
exon	3604..3684	/gene="MSH5" /number=4
exon	3835..3897	/gene="MSH5" /number=5
exon	4631..4752	/gene="MSH5" /number=6
exon	4917..5026	/gene="MSH5" /number=7
exon	5273..5308	/gene="MSH5" /number=8
exon	5964..6046	/gene="MSH5" /number=9

SEQUENCE (SEQ):

```
     1 cctctctgtc ttcaggggtg tgtagaagtg cgaaggggta tgggcatgtc ccagtagggg
    61 tgtgagtgtt ctgatcagaa ctacttctct ctgccagaat ttgatgtaat tcgaatgctt
   121 ccacctctgc ttgaagggtt taaataataa attaggccct gtcgtgccat tatgggggtg
   181 gtcataccct gtacccagga aacaggcacg gtagggctga gacagaagtc ctgcttgttt
   241 ccgcttattt atttgaaaca ccgctcattt aggtcttact ttgtttgcca ggcactgttc
   301 taagctctgt ataaatatta actcagaggg tacaaatatt aacttaagag ttgttgcagg
   361 aaaaaaaata agcgcctctg gctctttaag tttggcctcc ccctcaaaac ccccgcaacg
   421 gtcccaaacc ccttccaggg actgggacta cggaccctgg tccgaccttc tcgcgggctt
   481 cccactgcgc caatcaaatc ccagaaacag tgagtgctat aggcccggct gctaagcaac
   541 ggcatagggc gggaagtttg aacgttctgg acccgccccg aaggcaaata ggccaatcag
   601 cgtccagact cttcagctac ggcagtccgc ttctcctcct cgccctgtcg gatctctagg
   661 ctggatccgg gcctctccaa tcaacagcgg ctaggagggc ggggcgcgtg cgcgcgcacc
   721 tcgctcacgc gccggcgcgc tccttttgca ggctcgtggc ggtcggtcag cggggcgttc
   781 tcccacctgt agcgactcag gttactgaaa aggcgggaaa acgctgcgat ggcggcagct
   841 gggggaggag gaagataagc gcgtgaggct ggggtcctgg cgcgtggttg gcagaggcag
```

```
 901 agacataaga cgtgcacgac tcgccccaca gggccctcag accccttcct tccaaagggt
 961 aacctccgcg tgacaggaat gagggtgggg cgcgtggagt ttcccacaat ctgtacttta
1021 gttaaatacc cgagaattca cctcctgtgt ccacagctct ccacgcccct cagccctgcc
1081 ccgcagccct gtagcagaag tacttagtgc tttgcattct gcgcgccacc ctaccccggc
1141 ctcctctgtg aatcgttgct tccgaaccgg cctcactttt tgcatccgca gagcctccaa
1201 gctcatggcc tccttaggag cgaacccaag gaggacaccg cagggaccga gacctggggc
1261 ggcctcctcc ggcttcccca gcccggcccc agtgccgggc cccagggagg ccgaggagga
1321 ggaagtcgag gaggaggagg agctggccga ggtctctgag gggagtagaa acttgaatgg
1381 agagttgatg ggaagttaga ataaaagagg gttgggagcc gggcgcggtg gctcacacct
1441 gtaatcttag cactttggga gactgaggcg ggcggatcac ctgagctcag gagttggaga
1501 ccagcctggg caacatggcg aaaccccgtc tctactaaaa atataaaaat tagccgagcg
1561 tggtggcacg tgcctgttat cccagctact gggaaggctg aggcaggaga atcactgtaa
1621 ctcgggaggc ggaggttgca atgagctgag attgctccac tgcacttcag cctgggcgac
1681 agagcaagac tccgtctcaa agaaagaaag aaaaaaaaaa cagggttggg aagagctggg
1741 caagtctctt acctcctgag tggctgtttc acattcacta aatgggggtg atgatgccta
1801 tctcagagat ttgagaaaat gattaaatta tataagacat ggtaaaccct acacttatga
1861 gtgattctaa tagtgatttc ctttcttcct tgctggacag atccatctgt gtgtgctgtg
1921 gaattcagga tacttgggca ttgcctacta tgatactagt gactccacta tccacttcat
1981 gccagatgcc ccagaccacg agagcctcaa gcttctccag agaggtgggg atggaaccat
2041 gaattcctct gctctctggg attgcagatg tgttacacac acacacacac acacacacac
2101 acacacatat ttttttttte tagacagagt cttgctctgt tacccaggct caagtgcagt
2161 ggcgcaatct tggctcactg cagcctccac ctcctgggtt caagcaattc tcctgactca
2221 acctcccgag tagctgggac tacaggcgtg tgccaccaca cccagctagt tttttgtgtg
2281 tgtttttagc acagacggtg tttcaccatg ttggccaggg tggtctcaaa ctcctgacct
2341 tgtgatccgc ccaccttggc ctcctaaagt gctgggacta caggtgtgag tcaccacgcc
2401 cagccatgtt ttacttacat taactcacct cactgtctag catattttgt gttgctgtaa
2461 ggaaatacct gactctgagt aatttgttaa aaaaaaaaaa aaagttttat ttggcttatg
2521 gttctggatg gttggaaagc tcaaaattgg gcatcttcac tggtgagagc ctcagactgc
2581 ttcaactcat ggaagaaggg aaggcagggt gtgtagaggt cacatggcag agaagaagca
2641 agggggaggg agatgccagg ctcttttttga caaccagctc tctcaggaac taatagagtg
2701 agaacctctc actcataccc accaacacac tccaggaagg gcattaatct gttcatgagc
2761 gatccactcc catcacccac acacctcctg ctaggcccta cctcacaaca ctatcacact
2821 ggggattaaa tttcaacacg atatttggca gggacaaatc acatccaaac tatagcactg
2881 actcaatata ttttacagtt gcttcacaga ggctccctct tttgttttta tgaattcatt
2941 tcattattta acaaatattt gtgaggctgt tttttggttt gtttggttgt tctttttga
3001 gacagtgtct tgctccgtca ctcaggctgg aagtgtagtg gtgccatctt ggctcactgc
3061 aacctccgtc tcccggattc aagcaattct cctgcctcag tctcccgagt agctgggatt
3121 acaagaatct gccatcacgc ctggctaatt tttatatttt tagtagaggc agggtttcac
3181 cacgttggct aggcttgtct tgagctcctg gcctccagtg atctgcctgc cttggcctcc
3241 caaagggcag ggattatagg catgagccac tgtgcctggc cacaaatata tatgagtatt
3301 taccaatgtt tccaggtgct tcaggattca gccctgggca aatcagtcat gtctgttctc
3361 ccaggggttt acagcctagt gacaacatcc agaacatccc acttccctct caccatccca
3421 ccactcttaa ctacttttct aaatctcaac ttctacctgt gttcccactg tgcagagcac
3481 tccctactcc tagggaggaa atgtttttga gaaggagagg ggtaggaaga ggagggctat
3541 gggttttctc ttagtcaaag acaaagatcc tttaactcat ttgatctctg ttctccttcc
3601 aagttctgga tgagatcaat ccccagtctg ttgttacgag tgccaaacag gatgagaata
3661 tgactcgatt tctgggaaag cttggtaagg acttggtaaa ggatagaggg aaaatgggga
3721 aggactaata tatggaatat tccaggggge tagaattggg tgagagggag tgtcagacag
3781 aggtagaagg actgagatgt aaagaatgat agccttttct ttcctccccc acagcctccc
3841 aggagcacag agagcctaaa agacctgaaa tcatattttt gccaagtgtg gattttggta
3901 tctccttcct tttgctttgc ctaactccct gttccggtgt cccattcttt cccccaactc
3961 taccttcatc atcacagatc tcccctctgc cttatgtcat cctaaacctt tgtgctcctc
4021 atgccctatg acctgtcccc ccaagatctc tcctgctccc taccctttaa taacctgcag
4081 cttattggga agcctctgct taagtcatgt ctagggatga gggcctcccc tgaggagtgg
4141 tgacactttt tggacagggt tttattgttg gaattctccc cattaagtta aagcctttta
4201 tcaccaaacc aaaaggcact gcctcagtga cccttattat gatccataag gcacttctat
4261 aactttccta ggtttacaat aagaacagga gtgtactatc ctaattagat attaaggcat
4321 tagtgttact agttctatta ataccattat tttgaccaaa atcctcaatt ccagacagat
4381 gtctactttc ctcagccatt tatctttctc aggctgtgct ttcagacaag tatctttata
4441 ttatatgtag aataaaaaga gaattagact aagagtctga aaatttggtt cttgctctag
4501 ctttccatta actgcctgtg tgagcttggg caagtcaaat aatctctctt gcttctattg
4561 tctcattctt aaaatggggt gaaaaaattg agctacaaga ccgttccctt tgcttgcctc
4621 cctcaaatag gtctggagat aagcaaacaa cgcctccttt ctggaaacta ctccttcatc
4681 ccagacgcca tgactgccac tgagaaaatc ctcttcctct cttccattat tccctttgac
4741 tgcctcctca cagtgagatt ggtcctgggg gataagggct gggaggcggc acaagtgcta
```

```
  4801 gggctgaatt ctgggaggta ctggcctagc cctggaaaat agtaactttc cctggtgctc
  4861 tgcagccccc aggagattta agatttaccc cgattccact gctgatcccc tcccaggttc
  4921 gagcacttgg agggctgctg aagttcctgg gtcgaagaag aatcggggtt gaactggaag
  4981 actataatgt cagcgtcccc atcctgggct ttaagaaatt tatgttgtag gtgattcacc
  5041 ccaaccccaa ccaaagtaat gtgggattgg gaggcctgaa aagtaaagtg ggggtggggt
  5101 gtggatgtgg ctgtgaccca gtgggtcaag tgctctagga cacccgggag aatctaaggg
  5161 ctaatgagac tttgggaaga agactgggac aatattcaga gaggggaca aaggaagtgg
  5221 agttgtggaa cgaactcaga ctgcttcctg ctttttgtt ttctgtcctc aggactcatc
  5281 tggtgaacat agatcaagac acttacaggt aaagaggtgg aggcatgctg ctgtctctgg
  5341 ggagggagaa ggattaagtt taatgcccca ataatcctaa tgaggctcta gtttccctaa
  5401 tcctggggct attaagatct ctctccttga aggaaaggga agggggttt tgagggaaag
  5461 agaggaagaa aagcataaag atactagctt tcttttctat agggagaaac tgaggcaaag
  5521 aaaagtaagg gacaaacctt acatcaagat atgatctcgg ctgggcgcgg tggctcatgc
  5581 ctgtaatccc cgcgctttgg gaggccaagg cgggtggatc gcctgaggtc aggagtttga
  5641 gacctgacca atatggtaaa accccgtctc tactaaaaat ataaaaatta gctgggtgtg
  5701 ttgtgcgcct gtaatcccag ccactcagga ggctgaggca ggattgcttg aatccaggag
  5761 gcagaggttg cagtgagctg aaattgcacc actgcactcc agcctgggcg acagagcgag
  5821 actccatctc aaaaaaaaaa aaaaaaaaaa aaagacgtga tctcaggagg atatcccctg
  5881 tccccattcc atttatcagt cctcaattct tattcccttc aaaagtccaa gttaccccaa
  5941 actcctccat ttctcctcga cagtgttcta cagattttta agagtgagtc tcacccctca
  6001 gtgtacaaag tggccagtgg actgaaggag gggctcagcc tctttggtag gtgtgcccca
  6061 tccctcatct cacattacaa agacctacca gaaaagcaat tggctccaaa gatgtgtccc
  6121 agcctccctt cccacttcac tcccattgtc agatatctct ttcatgccaa tccaaatttc
  6181 ttacctattt gtaccccccg ccccccaagc ttgagcatct tcccatactt tgtggctgta
  6241 cagtgttgtt gcatatcagc cattacttta ccaattctgt gttccttccc tgggtttgta
  6301 tgaatgtttc tactagttgg gtacctgtta gggactttgg gagaccttgt gtatagagaa
  6361 gagttttgta actgcataac tgcctatttg atttgtatag agtctttatc aagttgtctc
  6421 tggctttagg gtatattagg gacatctccg caaatatcca tatagtttca tatctcagta
  6481 agttgtgtcc aggttttttt ttttttttt tttgagacag agtctcgctc tgtcgcccag
  6541 gctggagtgc agtggtgcaa tatcagctca ctgcaagctc tgcctcctgg gttcacacca
  6601 ttctgctgcc tcagcctcct gagtagctag gactacaggt gcccaccacg atgcctggct
  6661 aatttttgta tttttagtag agaacgggtt tcactgtgtt agccaggatg atctcgatct
  6721 cctgacctcg tgatccgtcc acctcggcct cccaaagtgc tgggattaca ggcgtgagcc
  6781 accgcgcctg gccagttgtg tccagttttg tgtgtgtgtg
```

L16 ANSWER 18 OF 25 GENBANK.RTM. COPYRIGHT 2002

LOCUS (LOC): AF048987 GenBank (R)
GenBank ACC. NO. (GBN): AF048987
CAS REGISTRY NO. (RN): 207662-24-6
SEQUENCE LENGTH (SQL): 112
MOLECULE TYPE (CI): mRNA; linear
DIVISION CODE (CI): Primates
DATE (DATE): 6 Oct 1998
DEFINITION (DEF): Homo sapiens **MutS homolog 5** (MSH5) mRNA, 5' untranslated region.
SOURCE: human.
ORGANISM (ORGN): Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
NUCLEIC ACID COUNT (NA): 11 a 43 c 38 g 20 t
REFERENCE: 1 (bases 1 to 112)
AUTHOR (AU): Her,C.; Doggett,N.A.
TITLE (TI): Cloning, structural characterization, and chromosomal localization of the human orthologue of Saccharomyces cerevisiae MSH5 gene
JOURNAL (SO): Genomics, 52 (1), 50-61 (1998)
OTHER SOURCE (OS): CA 130:1059
REFERENCE: 2 (bases 1 to 112)
AUTHOR (AU): Her,C.; Doggett,N.
TITLE (TI): Direct Submission
JOURNAL (SO): Submitted (17-FEB-1998) Life Sciences Division and Center for Human Genome Studies, Mail Stop: M888, Los Alamos National Laboratory, Los Alamos, NM 87545, USA

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..112	/organism="Homo sapiens" /db-xref="taxon:9606" /chromosome="6" /map="6p21.3"
gene	1..112	/gene="MSH5" /note="MutS homolog 5"
5'UTR	1..112	/gene="MSH5" /note="alternatively spliced"

SEQUENCE (SEQ):

```
     1 gggcgcgtgc gcgcgcacct cgctcacgcg ccggcgcgct ccttttgcag gctcgtggcg
    61 gtcggtcagc ggggcgttct cccacctgta gcgactcaga gcctccaagc tc
```

L16 ANSWER 19 OF 25 GENBANK.RTM. COPYRIGHT 2002

LOCUS (LOC): AF048986 GenBank (R)
GenBank ACC. NO. (GBN): AF048986
CAS REGISTRY NO. (RN): 207662-23-5
SEQUENCE LENGTH (SQL): 2873
MOLECULE TYPE (CI): mRNA; linear
DIVISION CODE (CI): Primates
DATE (DATE): 6 Oct 1998
DEFINITION (DEF): Homo sapiens **MutS homolog 5** (MSH5) mRNA, complete cds.
SOURCE: human.
ORGANISM (ORGN): Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
NUCLEIC ACID COUNT (NA): 675 a 774 c 753 g 671 t
REFERENCE: 1 (bases 1 to 2873)
AUTHOR (AU): Her,C.; Doggett,N.A.
TITLE (TI): Cloning, structural characterization, and chromosomal localization of the human orthologue of Saccharomyces cerevisiae MSH5 gene
JOURNAL (SO): Genomics, 52 (1), 50-61 (1998)
OTHER SOURCE (OS): CA 130:1059
REFERENCE: 2 (bases 1 to 2873)
AUTHOR (AU): Her,C.; Doggett,N.
TITLE (TI): Direct Submission
JOURNAL (SO): Submitted (17-FEB-1998) Life Sciences Division and Center for Human Genome Studies, Mail Stop: M888, Los Alamos National Laboratory, Los Alamos, NM 87545, USA

FEATURES (FEAT):

Feature Key	Location	Qualifier
source	1..2873	/organism="Homo sapiens" /db-xref="taxon:9606" /chromosome="6" /map="6p21.3"
gene	1..2873	/gene="MSH5"
CDS	207..2711	/gene="MSH5" /codon-start=1 /product="MutS homolog 5" /protein-id="AAC62533.1" /db-xref="GI:3108220" /translation="MASLGANPRRTPQGPRPGAA SSGFPSPAPVPGPREAEEEEVEEE EELAEIHLCVLWNSGYLGIAYYDTSDSTIHFMPD APDHESLKLLQRVLDEINPQSVVT

SAKQDENMTRFLGKLASQEHREPKRPEIIFLPSV
DFGLEISKQRLLSGNYSFIPDAMT
ATEKILFLSSIIPFDCLLTVRALGGLLKFLGRRR
IGVELEDYNVSVPILGFKKFMLTH
LVNIDQDTYSVLQIFKSESHPSVYKVASGLKEGL
SLFGILNRCHCKWGEKLLRLWFTR
PTHDLGELSSRLDVIQFFLLPQNLDMAQMLHRLL
GHIKNVPLILKRMKLSHTKVSDWQ
VLYKTVYSALGLRDACRSLPQSIQLFRDIAQEFS
DDLHHIASLIGKVVDFEGSLAENR
FTVLPNIDPEIDEKKRRLMGLPSFLTEVARKELE
NLDSRIPSCSVIYIPLIGFLLSIP
RLPSMVEASDFEINGLDFMFLSEEKLHYRSARTK
ELDALLGDLHCEIRDQETLLMYQL
QCQVLARAAVLTRVLDLASRLDVLLALASAARDY
GYSRPRYSPQVLGVRIQNGRHPLM
ELCARTFVPNSTECGGDKGRVKVITGPNSSGKSI
YLKQVGLITFMALVGSFVPAEEAE
IGAVDAIFTRIHSCESISLGLSTFMIDLNQVAKA
VNNATAQSLVLIDEFGKGTNTVDG
LALLAAVLRHWLARGPTCPHIFVATNFLSLVQLQ
LLPQGPLVQYLTMETCEDGNDLVF
FYQVCEGVAKASHASHTAAQAGLLDKLVARGKEV
SDLIRSGKPIKPVKDLLKKNQMEN
CQTLVDKFMKLDLEDPNLDLNVFMSQEVLPAATS
IL"

SEQUENCE (SEQ):

```
     1 gtcagcgggg cgttctccca cctgtagcga ctcaggttac tgaaaaggcg ggaaaacgct
    61 gcgatggcgg cagctggggg aggaggaaga taagcgcgtg aggctggggt cctggcgcgt
   121 ggttggcaga ggcagagaca taagacgtgc acgactcgcc ccacagggcc ctcagacccc
   181 ttccttccaa aggagcctcc aagctcatgg cctccttagg agcgaaccca aggaggacac
   241 cgcagggacc gagacctggg gcggcctcct ccggcttccc cagcccggcc ccagtgccgg
   301 gccccaggga ggccgaggag gaggaagtcg aggaggagga ggagctggcc gagatccatc
   361 tgtgtgtgct gtggaattca ggatacttgg gcattgccta ctatgatact agtgactcca
   421 ctatccactt catgccagat gccccagacc acgagagcct caagcttctc cagagagttc
   481 tggatgagat caatccccag tctgttgtta cgagtgccaa acaggatgag aatatgactc
   541 gatttctggg aaagcttgcc tcccaggagc acagagagcc taaaagacct gaaatcatat
   601 ttttgccaag tgtggatttt ggtctggaga taagcaaaca acgcctcctt tctggaaact
   661 actccttcat cccagacgcc atgactgcca ctgagaaaat cctcttcctc tcttccatta
   721 ttccctttga ctgcctcctc acagttcgag cacttggagg gctgctgaag ttcctgggtc
   781 gaagaagaat cggggttgaa ctggaagact ataatgtcag cgtccccatc ctgggcttta
   841 agaaatttat gttgactcat ctggtgaaca tagatcaaga cacttacagt gttctacaga
   901 tttttaagag tgagtctcac ccctcagtgt acaaagtggc cagtggactg aaggaggggc
   961 tcagcctctt tggaatcctc aacagatgcc actgtaagtg gggagagaag ctgctcaggc
  1021 tatggttcac acgtccgact catgacctgg gggagctcag ttctcgtctg gacgtcattc
  1081 agtttttct gctgccccag aatctggaca tggctcagat gctgcatcgg ctcctgggtc
  1141 acatcaagaa cgtgcctctg attctgaaac gcatgaagtt gtcccacacc aaggtcagcg
  1201 actggcaggt tctctacaag actgtgtaca gtgccctggg cctgagggat gcctgccgct
  1261 ccctgccgca gtccatccag ctctttcggg acattgccca agagttctct gatgacctgc
  1321 accatatcgc cagcctcatt gggaaagtag tggactttga gggcagcctt gctgaaaatc
  1381 gcttcacagt cctccccaac atagatcctg aaattgatga gaaaaagcga agactgatgg
  1441 gacttcccag tttccttact gaggttgccc gcaaggagct ggagaatctg gactcccgta
  1501 ttccttcatg cagtgtcatc tacatccctc tgattggctt ccttctttct attccccgcc
  1561 tgccttccat ggtagaggcc agtgactttg agattaatgg actggacttc atgtttctct
  1621 cagaggagaa gctgcactat cgtagtgccc gaaccaagga gctggatgca ttgctggggg
  1681 acctgcactg cgagatccgg gaccaggaga cgctgctgat gtaccagcta cagtgccagg
  1741 tgctggcacg agcagctgtc ttaacccgag tattggacct tgcctcccgc ctggacgtcc
  1801 tgctggctct tgccagtgct gcccgggact atggctactc aaggccgcgt tactccccac
  1861 aagtccttgg ggtacgaatc cagaatggca gacatcctct gatggaactc tgtgcccgaa
  1921 cctttgtgcc caactccaca gaatgtggtg gggacaaagg gagggtcaaa gtcatcactg
  1981 gacccaactc atcagggaag agcatatacc tcaaacaggt aggcttgatc acattcatgg
  2041 ccctggtagg cagctttgtg ccagcagagg aggccgaaat tggggcagta gacgccatct
  2101 tcacacgaat tcatagctgc gaatccatct cccttggcct ctccaccttc atgatcgacc
  2161 tcaaccaggt ggcgaaagca gtgaacaatg ccactgcaca gtcgctggtc cttattgatg
```

2221 aatttggaaa gggaaccaac acggtggatg ggctcgcgct tctggccgct gtgctccgac
2281 actggctggc acgtggaccc acatgccccc acatctttgt ggccaccaac tttctgagcc
2341 ttgttcagct acaactgctg ccacaagggc ccctggtgca gtatttgacc atggagacct
2401 gtgaggatgg caacgatctt gtcttcttct atcaggtttg cgaaggtgtt gcgaaggcca
2461 gccatgcctc ccacacagct gcccaggctg ggcttcttga caagcttgtg gctcgtggca
2521 aggaggtctc agacttgatc cgcagtggaa aacccatcaa gcctgtcaag gatttgctaa
2581 agaagaacca aatggaaaat tgccagacat tagtggataa gtttatgaaa ctggatttgg
2641 aagatcctaa cctggacttg aacgttttca tgagccagga agtgctgcct gctgccacca
2701 gcatcctctg agagtccttc cagtgtcctc cccagcctcc tgagactccg gtgggctgcc
2761 atgccctctt tgtttcctta tctccctcag acgcagagtt tttagtttct ctagaaattt
2821 tgtttcatat taggaataaa gtttattttg aagaaaaaaa aaaaaaaaaa aaa

L16 ANSWER 20 OF 25 DGENE (C) 2002 THOMSON DERWENT
AN AAA62961 DNA DGENE
TI New transgenic mouse comprising a misexpressed **MutS homolog 5** (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
IN Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PA (YESH) UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PI WO 2000036910 A1 20000629 44p
AI WO 1999-US30958 19991222
PRAI US 1998-113487 19981222
PSL Examples; Page 19
DED 14 NOV 2000 (first entry)
DT Patent
LA English
OS 2000-442485 [38]
DESC Reverse PCR primer used to identify MSH5 containing ES cell colonies.
KW MutS homologue 5; MSH5; DNA mismatch repair; sterile; fertility; transgenic mouse; fertility treatment; fertility disease; meiosis; contraceptive; PCR primer; ss.
ORGN Unidentified.
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate MSH5 activity, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to identify ES cell colonies which are successfully transfected with a Msh5 containing vector pMsh5ex18 in examples used to illustrate the methods of the invention.
NA 5 A; 2 C; 9 G; 4 T; 0 other
SQL 20
SEQ
1 tggaaggatt ggagctacgg

L16 ANSWER 21 OF 25 DGENE (C) 2002 THOMSON DERWENT
AN AAA62960 DNA DGENE
TI New transgenic mouse comprising a misexpressed **MutS homolog 5** (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
IN Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PA (YESH) UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.

PI WO 2000036910 A1 20000629 44p
AI WO 1999-US30958 19991222
PRAI US 1998-113487 19981222
PSL Examples; Page 19
DED 14 NOV 2000 (first entry)
DT Patent
LA English
OS 2000-442485 [38]
DESC Forward PCR primer used to identify MSH5 containing ES cell colonies.
KW MutS homologue 5; MSH5; DNA mismatch repair; sterile; fertility; transgenic mouse; fertility treatment; fertility disease; meiosis; contraceptive; PCR primer; ss.
ORGN Unidentified.
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate MSH5 activity, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to identify ES cell colonies which are successfully transfected with a Msh5 containing vector pMsh5ex18 in examples used to illustrate the methods of the invention.
NA 5 A; 6 C; 6 G; 4 T; 0 other
SQL 21
SEQ

1 agctggagaa cctggactct c

L16 ANSWER 22 OF 25 DGENE (C) 2002 THOMSON DERWENT
AN AAA62959 DNA DGENE
TI New transgenic mouse comprising a misexpressed **MutS homolog 5** (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
IN Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PA (YESH) UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PI WO 2000036910 A1 20000629 44p
AI WO 1999-US30958 19991222
PRAI US 1998-113487 19981222
PSL Examples; Page 18
DED 14 NOV 2000 (first entry)
DT Patent
LA English
OS 2000-442485 [38]
DESC Antisense PCR primer used for cloning the mouse Msh5 gene.
KW MutS homologue 5; MSH5; DNA mismatch repair; sterile; fertility; transgenic mouse; fertility treatment; fertility disease; meiosis; contraceptive; PCR primer; ss.
ORGN Homo sapiens.
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate MSH5 activity, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility disease or disorder. The

transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to clone the coding sequence of the mouse Msh5 gene. The primer is based on the human Msh5 cDNA sequence.

NA 7 A; 6 C; 11 G; 4 T; 0 other

SQL 28

SEQ

1 gctggggagg acactggaag gactctca

L16 ANSWER 23 OF 25 DGENE (C) 2002 THOMSON DERWENT

AN AAA62958 DNA DGENE

TI New transgenic mouse comprising a misexpressed **MutS homolog 5** (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -

IN Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S

PA (YESH) UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.

PI WO 2000036910 A1 20000629 44p

AI WO 1999-US30958 19991222

PRAI US 1998-113487 19981222

PSL Examples; Page 18

DED 14 NOV 2000 (first entry)

DT Patent

LA English

OS 2000-442485 [38]

DESC Sense PCR primer used for cloning the mouse Msh5 gene.

KW MutS homologue 5; MSH5; DNA mismatch repair; sterile; fertility; transgenic mouse; fertility treatment; fertility disease; meiosis; contraceptive; PCR primer; ss.

ORGN Homo sapiens.

AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate MSH5 activity, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to clone the coding sequence of the mouse Msh5 gene. The primer is based on the human Msh5 cDNA sequence.

NA 6 A; 11 C; 3 G; 7 T; 0 other

SQL 27

SEQ

1 ctccactatc cacttcatgc cagatgc

L16 ANSWER 24 OF 25 DGENE (C) 2002 THOMSON DERWENT

AN AAA62957 DNA DGENE

TI New transgenic mouse comprising a misexpressed **MutS homolog 5** (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -

IN Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S

PA (YESH) UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.

PI WO 2000036910 A1 20000629 44p
AI WO 1999-US30958 19991222
PRAI US 1998-113487 19981222
PSL Examples; Page 18
DED 14 NOV 2000 (first entry)
DT Patent
LA English
OS 2000-442485 [38]
DESC Antisense PCR primer for amplification of the mouse Msh5 gene.
KW MutS homologue 5; MSH5; DNA mismatch repair; sterile; fertility; transgenic mouse; fertility treatment; fertility disease; meiosis; contraceptive; PCR primer; ss.
ORGN Homo sapiens.
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate MSH5 activity, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to obtain a segment of the mouse Msh5 gene. The primer is based on the human Msh5 cDNA sequence.
NA 6 A; 6 C; 5 G; 3 T; 0 other
SQL 20
SEQ

1 ccagaactct ctggagaagc

L16 ANSWER 25 OF 25 DGENE (C) 2002 THOMSON DERWENT
AN AAA62956 DNA DGENE
TI New transgenic mouse comprising a misexpressed **MutS homolog 5** (MSH5) gene, useful for screening compounds that can be used for treating MSH5-related disorders, e.g. fertility disorders -
IN Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PA (YESH) UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PI WO 2000036910 A1 20000629 44p
AI WO 1999-US30958 19991222
PRAI US 1998-113487 19981222
PSL Examples; Page 18
DED 14 NOV 2000 (first entry)
DT Patent
LA English
OS 2000-442485 [38]
DESC Sense PCR primer for amplification of the mouse Msh5 gene.
KW MutS homologue 5; MSH5; DNA mismatch repair; sterile; fertility; transgenic mouse; fertility treatment; fertility disease; meiosis; contraceptive; PCR primer; ss.
ORGN Homo sapiens.
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (MSH5) gene is misexpressed. The MSH5 protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the MSH5 gene are sterile, and can be used in a method for evaluating a fertility treatment. Included in the invention are a method for identifying compounds which modulate MSH5 activity, a method for modulating the activity of MSH5, and a method for identifying individuals at risk of developing a fertility disease or disorder. The transgenic mouse can be used to screen for treatments for MSH5-related

disorders, e.g. fertility disorders. Cells derived from the transgenic mouse can be used to define the mechanism of MSH5 function in cell processes, e.g. meiosis. Compounds (e.g. antisense MSH5 nucleic acids, MSH5 antibodies, MSH5 agonists or antagonists) that modulate the activity of MSH5 are useful as contraceptives. The present sequence represents a PCR primer used to obtain a segment of the mouse Msh5 gene. The primer is based on the human Msh5 cDNA sequence.

NA 5 A; 3 C; 7 G; 6 T; 0 other

SQL 21

SEQ

1 gtgctgtgga attcaggata c

=>

=> s l1
L11 6 FILE DGENE
L12 3 FILE USPATFULL
L13 2 FILE CABA
L14 1 FILE BIOTECHDS
L15 1 FILE CAPLUS
L16 1 FILE PROMT
L17 1 FILE WPIDS
L18 1 FILE NLDB

TOTAL FOR ALL FILES
L19 16 L1

=> d l19 1-16 ibib abs

L19 ANSWER 1 OF 16 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62961 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed **MutS homolog** 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5** -related disorders, e.g. **fertility** disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62961 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a **fertility** treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for modulating the activity of **MSH5**, and a method for identifying individuals at risk of developing a **fertility** disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5** -related disorders, e.g. **fertility** disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as **contraceptives**. The present sequence represents a PCR primer used to identify ES cell colonies which are successfully transfected with a **Msh5** containing vector pMsh5ex18 in examples used to illustrate the methods of the invention.

L19 ANSWER 2 OF 16 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62960 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed **MutS homolog** 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5** -related disorders, e.g. **fertility** disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English

OTHER SOURCE: 2000-442485 [38]
AN AAA62960 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a **fertility** treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for modulating the activity of **MSH5**, and a method for identifying individuals at risk of developing a **fertility** disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5** -related disorders, e.g. **fertility** disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as **contraceptives**. The present sequence represents a PCR primer used to identify ES cell colonies which are successfully transfected with a **Msh5** containing vector pMsh5ex18 in examples used to illustrate the methods of the invention.

L19 ANSWER 3 OF 16 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62959 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed **MutS homolog** 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5** -related disorders, e.g. **fertility** disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62959 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a **fertility** treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for modulating the activity of **MSH5**, and a method for identifying individuals at risk of developing a **fertility** disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5** -related disorders, e.g. **fertility** disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as **contraceptives**. The present sequence represents a PCR primer used to clone the coding sequence of the mouse **Msh5** gene. The primer is based on the human **Msh5** cDNA sequence.

L19 ANSWER 4 OF 16 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62958 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed **MutS homolog** 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5** -related disorders, e.g. **fertility** disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S

PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62958 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a **fertility** treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for modulating the activity of **MSH5**, and a method for identifying individuals at risk of developing a **fertility** disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5** -related disorders, e.g. **fertility** disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as **contraceptives**. The present sequence represents a PCR primer used to clone the coding sequence of the mouse **Msh5** gene. The primer is based on the human **Msh5** cDNA sequence.

L19 ANSWER 5 OF 16 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62957 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed **MutS homolog** 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5** -related disorders, e.g. **fertility** disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62957 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a **fertility** treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for modulating the activity of **MSH5**, and a method for identifying individuals at risk of developing a **fertility** disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5** -related disorders, e.g. **fertility** disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as **contraceptives**. The present sequence represents a PCR primer used to obtain a segment of the mouse **Msh5** gene. The primer is based on the human **Msh5** cDNA sequence.

L19 ANSWER 6 OF 16 DGENE (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: AAA62956 DNA DGENE
TITLE: New transgenic mouse comprising a misexpressed **MutS homolog** 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5** -related disorders, e.g. **fertility** disorders -
INVENTOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: (YESH)UNIV YESHIVA EINSTEIN COLLEGE.
(DAND) DANA FARBER CANCER INST INC.
PATENT INFO: WO 2000036910 A1 20000629 44p
APPLICATION INFO: WO 1999-US30958 19991222
PRIORITY INFO: US 1998-113487 19981222
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 2000-442485 [38]
AN AAA62956 DNA DGENE
AB This invention relates to a transgenic mouse, in which the MutS homologue 5 (**MSH5**) gene is misexpressed. The **MSH5** protein is a member of a family of proteins involved in DNA mismatch repair. Animals which are homozygous for a null mutation in the **MSH5** gene are sterile, and can be used in a method for evaluating a **fertility** treatment. Included in the invention are a method for identifying compounds which modulate **MSH5** activity, a method for modulating the activity of **MSH5**, and a method for identifying individuals at risk of developing a **fertility** disease or disorder. The transgenic mouse can be used to screen for treatments for **MSH5** -related disorders, e.g. **fertility** disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as **contraceptives**. The present sequence represents a PCR primer used to obtain a segment of the mouse **Msh5** gene. The primer is based on the human **Msh5** cDNA sequence.

L19 ANSWER 7 OF 16 USPATFULL
ACCESSION NUMBER: 2002:112540 USPATFULL
TITLE: Compositions, kits, and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins
INVENTOR(S): Fishel, Richard A., Penn Valley, PA, UNITED STATES
Gradia, Scott, Philadelphia, PA, UNITED STATES
Acharya, Samir, Philadelphia, PA, UNITED STATES
PATENT ASSIGNEE(S): Thomas Jefferson University, Philadelphia, PA, UNITED STATES, 19107-5587 (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002058275	A1	20020516
APPLICATION INFO.:	US 2001-934909	A1	20010822 (9)

RELATED APPLN. INFO.: Division of Ser. No. US 1998-143571, filed on 28 Aug 1998, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-93935P	19980723 (60)
	US 1997-66977P	19971128 (60)
	US 1997-57136P	19970828 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P., ONE COMMERCE SQUARE, 2005 MARKET STREET, SUITE 2200, PHILADELPHIA, PA, 19103
NUMBER OF CLAIMS: 55

EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 25 Drawing Page(s)
LINE COUNT: 4648
AB Compositions, and products comprising a **MutS homolog** which binds to a mismatched region of a duplex DNA molecule in the presence of ADP are provided, as are methods of binding **MutS homologs** to mismatched DNA in the presence of ADP. The use of MutL homolog derivatives in combination with **MutS homologs** is also included. Nonhuman mammals which are nullizygous for both Msh2 and p53 are also provided, as are methods of making and using the same.

L19 ANSWER 8 OF 16 USPATFULL
ACCESSION NUMBER: 2002:72639 USPATFULL
TITLE: Mammalian SUV39H2 proteins and isolated DNA molecules encoding them
INVENTOR(S): Jenuwein, Thomas, Wien, AUSTRIA
O'Carroll, Donal, Greystones, IRELAND
Rea, Stephen, Headford, IRELAND

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002039776	A1	20020404
APPLICATION INFO.:	US 2001-876224	A1	20010608 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	EP 2000-112479	20000609
	EP 2000-112345	20000609
	US 2000-224173P	20000809 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: STERNE, KESSLER, GOLDSTEIN & FOX PLLC, 1100 NEW YORK AVENUE, N.W., SUITE 600, WASHINGTON, DC, 20005-3934
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 34 Drawing Page(s)
LINE COUNT: 2674
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Murine and human Suv39h2 polypeptide and DNA molecules encoding them. Suv39h2 is a novel member of the Suv3-9 gene family. Suv39h2 is a novel component of meiotic higher order chromatin. It has histone methyltransferase activity and is required, in combination with Suv39h1, for male gametogenesis. Suv39h2 can be used in screening methods to identify modulators of its methyltransferase activity, which are useful in cancer therapy and for male contraception.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L19 ANSWER 9 OF 16 USPATFULL
ACCESSION NUMBER: 2001:235086 USPATFULL
TITLE: Compositions, kits, and methods for effecting adenine nucleotide modulation of DNA mismatch recognition proteins
INVENTOR(S): Fishel, Richard A., Penn Valley, PA, United States
Gradia, Scott, Philadelphia, PA, United States
Acharya, Samir, Philadelphia, PA, United States
PATENT ASSIGNEE(S): Thomas Jefferson University, Philadelphia, PA, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6333153	B1	20011225
APPLICATION INFO.:	US 1998-143571		19980828 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-93935P	19980723 (60)
	US 1997-66977P	19971128 (60)
	US 1997-57136P	19970828 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Zitomer, Stephanie W.
LEGAL REPRESENTATIVE: Akin, Gump, Strauss, Hauer & Feld, L.L.P.
NUMBER OF CLAIMS: 88
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 49 Drawing Figure(s); 25 Drawing Page(s)
LINE COUNT: 4750
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Compositions, and products comprising a **MutS homolog** which binds to a mismatched region of a duplex DNA molecule in the presence of ADP are provided, as are methods of binding **MutS homologs** to mismatched DNA in the presence of ADP. The use of MutL homolog derivatives in combination with **MutS homologs** is also included. Nonhuman mammals which are nullizygous for both Msh2 and p53 are also provided, as are methods of making and using the same.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L19 ANSWER 10 OF 16 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 1999:142126 CABA
DOCUMENT NUMBER: 990107600
TITLE: Mammalian MutS homologue 5 is required for chromosome pairing in meiosis
AUTHOR: Edelmann, W.; Cohen, P. E.; Kneitz, B.; Winand, N.; Lia, M.; Heyer, J.; Kolodner, R.; Pollard, J. W.; Kucherlapati, R.
CORPORATE SOURCE: Department of Cell Biology, Albert Einstein College of Medicine, 1300 Morris Park Avenue, Bronx, New York 10461, USA.
SOURCE: Nature Genetics, (1999) Vol. 21, No. 1, pp. 123-127. 30 ref.
ISSN: 1061-4036
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To assess the role of MutS homologue 5 (**Msh5**), a member of a family of proteins involved in DNA repair, in mammals, mice with a null mutation in **Msh5** were generated. **Msh5**-/- mice were viable but sterile. Meiosis in these mice was affected due to the disruption of chromosome pairing in prophase I. This meiotic failure led to a diminution in testicular size and a complete loss of ovarian structures. It is concluded that normal **Msh5** function is essential for meiotic progression and, in females, gonadal maintenance.

L19 ANSWER 11 OF 16 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 1999:54998 CABA
DOCUMENT NUMBER: 990102864
TITLE: Mouse MutS-like protein **Msh5** is required for proper chromosome synapsis in male and female meiosis
AUTHOR: Vries, S. S. de; Baart, E. B.; Dekker, M.; Siezen, A.; Rooij, D. G. de; Boer, P. de; Riele, H. te; de Vries, S. S.; de Rooij, D. G.; de Boer, P.; te Riele, H.
CORPORATE SOURCE: Division of Molecular Carcinogenesis, Netherlands Cancer Institute, 1066 CX Amsterdam, Netherlands.
SOURCE: Genes & Development, (1999) Vol. 13, No. 5, pp. 523-531. 42 ref.

ISSN: 0890-9369
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Members of the mammalian mismatch repair protein family of MutS and MutL homologues have been implicated in postreplicative mismatch correction and chromosome interactions during meiotic recombination. It was shown that mice carrying a disruption in the MutS homologue **Msh5** exhibit a meiotic defect, leading to male and female sterility. Histological and cytological examination of cells during prophase I in both sexes revealed an extended zygotene stage, characterized by impaired and aberrant chromosome synapsis, which was followed by apoptotic cell death. It is concluded that mouse **Msh5** promotes synapsis of homologous chromosomes in meiotic prophase I.

L19 ANSWER 12 OF 16 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 2000-11710 BIOTECHDS
TITLE: New transgenic mouse comprising a misexpressed **MutS homolog** 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5** -related disorders, e.g. **fertility** disorders; involving vector-mediated MutS-5 gene transfer for expression in mouse cell
AUTHOR: Edelmann W; Kolodner R D; Pollard J W; Kucherlapati R S
PATENT ASSIGNEE: Albert-Einstein-Coll.Med.; Dana-Farber-Cancer-Inst.
LOCATION: Bronx, NY, USA; Boston, MA, USA.
PATENT INFO: WO 2000036910 29 Jun 2000
APPLICATION INFO: WO 1999-US30958 22 Dec 1999
PRIORITY INFO: US 1998-113487 22 Dec 1998
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2000-442485 [38]
AN 2000-11710 BIOTECHDS
AB A transgenic mouse comprising a misexpressed **MutS homolog** 5 (MHS5) gene is claimed. Also claimed are: a method of evaluating a **fertility** treatment; a method for identifying a compound which modulates the activity of **MSH5**; and a method of identifying a subject having or at risk of developing a **fertility** disease or disorder. The transgenic mouse can be used to screen treatments for **MSH5**-related disorders, e.g. **fertility** disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. meiosis. Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as **contraceptives**. The **MSH5** gene is disrupted by removal of DNA encoding all or part of the **MSH5** protein. The animal is homozygous or heterozygous for the disrupted gene. The disruption is an insertion or a deletion. In the method, the treatment is evaluated in vivo or in vitro. (39pp)

L19 ANSWER 13 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:441556 CAPLUS
DOCUMENT NUMBER: 133:72491
TITLE: Knockout mice with **MSH5** gene deleted and their uses
INVENTOR(S): Edelmann, Winfried; Kolodner, Richard D.; Pollard, Jeffrey W.; Kucherlapati, Raju S.
PATENT ASSIGNEE(S): Albert Einstein College of Medicine, USA; Dana-Farber Cancer Institute
SOURCE: PCT Int. Appl., 44 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000036910	A1	20000629	WO 1999-US30958	19991222

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP 1139732	A1	20011010	EP 1999-967642	19991222

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

PRIORITY APPLN. INFO.: US 1998-113487P P 19981222
WO 1999-US30958 W 19991222

AB An animal, e.g., transgenic mouse, in which the **MSH5** gene is misexpressed. The animal is useful for screening treatments for a no. of conditions. Methods for identifying **contraceptive** agents are also described. Heterozygous and homozygous knockout mice were constructed by std. methods of stem cell transformation and breeding. Homozygous knockout mice were sterile. Males show normal development of Leydig and Sertoli cells but no pachytene spermatocytes. Females did not show estrous and did not mate.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 14 OF 16 PROMT COPYRIGHT 2002 Gale Group

ACCESSION NUMBER: 2000:695206 PROMT
TITLE: EUROPEAN PATENT DISCLOSURES.(Brief Article)
SOURCE: BIOWORLD Today, (8 Aug 2000) Vol. 11, No. 152.
PUBLISHER: American Health Consultants, Inc.
DOCUMENT TYPE: Newsletter
LANGUAGE: English
WORD COUNT: 1892
FULL TEXT IS AVAILABLE IN THE ALL FORMAT

AB Akzo Nobel WO 00/37650 Hepatitis Y virus Arnhem, the Netherlands Hepatitis Y virus, genes, and encoded proteins, cells for growing the virus; for making vaccines.

L19 ANSWER 15 OF 16 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2000-442485 [38] WPIDS
DOC. NO. NON-CPI: N2000-330165
DOC. NO. CPI: C2000-134611
TITLE: New transgenic mouse comprising a misexpressed **MutS homolog** 5 (**MSH5**) gene, useful for screening compounds that can be used for treating **MSH5**-related disorders, e.g. **fertility** disorders.
DERWENT CLASS: B04 D16 P14 S03
INVENTOR(S): EDELMANN, W; KOLODNER, R D; KUCHERLAPATI, R S; POLLARD, J W
PATENT ASSIGNEE(S): (DAND) DANA FARBER CANCER INST INC; (YESH) UNIV YESHIVA EINSTEIN COLLEGE
COUNTRY COUNT: 90
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000036910	A1	20000629	(200038)*	EN	39

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ TZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES
FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS
LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL
TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
AU 2000023893 A 20000712 (200048)
EP 1139732 A1 20011010 (200167) EN
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000036910	A1	WO 1999-US30958	19991222
AU 2000023893	A	AU 2000-23893	19991222
EP 1139732	A1	EP 1999-967642	19991222
		WO 1999-US30958	19991222

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2000023893	A	Based on	WO 200036910
EP 1139732	A1	Based on	WO 200036910

PRIORITY APPLN. INFO: US 1998-113487P 19981222
AN 2000-442485 [38] WPIDS
AB WO 200036910 A UPAB: 20000811
NOVELTY - A transgenic mouse comprising a misexpressed **MutS homolog** 5 (**MSH5**) gene, is new.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(1) a method (M1) of evaluating a **fertility** treatment, comprising:
(a) administering the treatment to an **MSH5** misexpressing animal or a cell derived from it; and
(b) determining the effect of the treatment on a **fertility** indication;
(2) a method (M2) for identifying a compound which modulates the activity of **MSH5**, comprising:
(a) contacting **MSH5** with a test compound; and
(b) determining the effect of the test compound on the activity of **MSH5**;
(3) a method (M3) for modulating the activity of **MSH5** comprising contacting **MSH5** or a cell expressing **MSH5** with a compound which binds to **MSH5** in a sufficient concentration to modulate the activity of **MSH5**;
(4) a method of identifying a subject having or at risk of developing a **fertility** disease or disorder, comprising:
(a) obtaining a sample from the subject;
(b) contacting the sample with a nucleic acid probe or primer which selectively hybridizes to **MSH5**; and
(c) determining whether aberrant **MSH5** expression or activity exists in the sample; and
(5) an isolated cell, or a purified preparation of cells from an **MSH5** misexpressing animal.
USE - The transgenic mouse can be used to screen treatments for **MSH5**-related disorders, e.g. **fertility** disorders. Cells derived from the transgenic mouse can be used to define the mechanism of **MSH5** function in cell processes, e.g. mieosis.
Compounds (e.g. antisense **MSH5** nucleic acids, **MSH5** antibodies, **MSH5** agonists or antagonists) that modulate the activity of **MSH5** are useful as **contraceptives**.

Dwg.0/6

L19 ANSWER 16 OF 16 COPYRIGHT 2002 Gale Group

ACCESSION NUMBER: 2000:219975 NLDB
TITLE: EUROPEAN PATENT DISCLOSURES.(Brief Article)
SOURCE: BIOWORLD Today, (8 Aug 2000) Vol. 11, No. 152.
PUBLISHER: American Health Consultants, Inc.
DOCUMENT TYPE: Newsletter
LANGUAGE: English
WORD COUNT: 1892

=>